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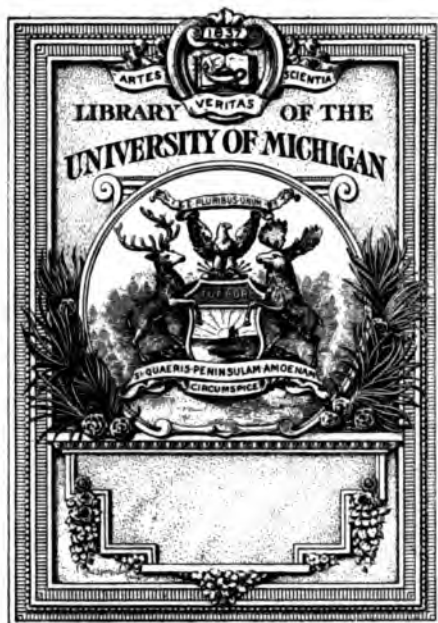
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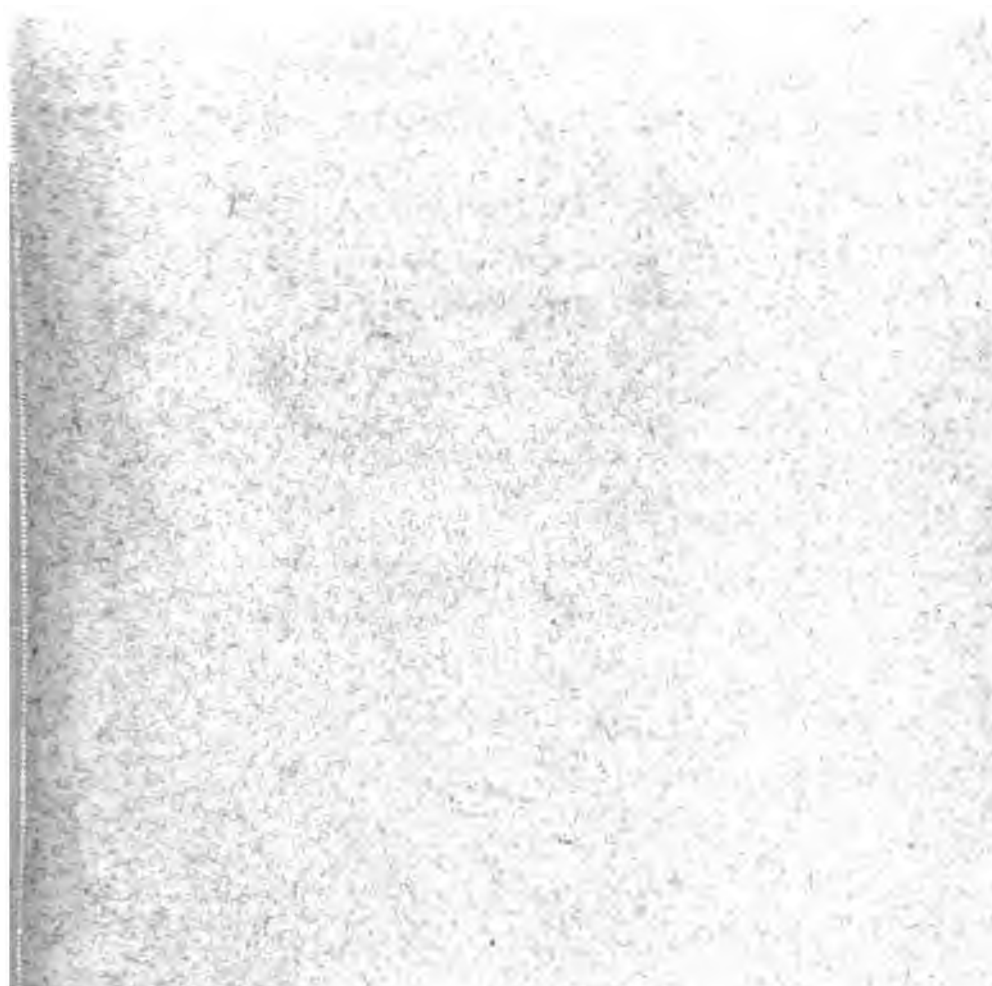
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DEPARTMENT OF THE INTERIOR

BULLETIN

OF THE

UNITED STATES

GEOLOGICAL SURVEY

No. 153

A BIBLIOGRAPHIC INDEX OF NORTH AMERICAN
CARBONIFEROUS INVERTEBRATES.—WELLER

WASHINGTON
GOVERNMENT PRINTING OFFICE
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UNITED STATES GEOLOGICAL SURVEY

CHARLES D. WALCOTT, DIRECTOR

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A

BIBLIOGRAPHIC INDEX

OF

NORTH AMERICAN CARBONIFEROUS INVERTEBRATES

BY

STUART WELLER.



WASHINGTON
GOVERNMENT PRINTING OFFICE
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PREFACE.

This bibliographic list was begun some years ago to supply a want felt by the compiler in his own researches among the Carboniferous faunas of North America. It was at first intended for private use only, but as it became more and more nearly complete and its usefulness became more and more apparent, it was decided to put it in shape for publication.

Like all works of its kind, this list is not perfect. Errors and omissions will doubtless be discovered, and those making these discoveries will confer a favor upon the compiler by reporting them to him. The most confusing questions which have arisen during the progress of the work have been in regard to the synonymy. No attempt has been made to eliminate all synonyms; this could be accomplished only through a complete revision of all the genera in all the classes of organisms represented. In so far as special groups have been studied by competent authorities their identifications of good species and synonyms have been followed. For the Crinoidea, the work of Wachs-muth and Springer has been the standard; for the Brachiopoda, Hall and Clarke, and Schuchert's Synopsis of American Fossil Brachiopoda; for the Cephalopoda, the work of Hyatt, so far as possible; and for the Bryozoa, the work of Ulrich. Except for some possible accidental omissions, references to all publications to January 1, 1898, have been included. References of species to their proper genera, not accompanied by descriptions or illustrations, have ordinarily been omitted, and for these the student is referred to the special works of the authors above mentioned.

In some groups many names have been recently added to our literature, and these have been included in the list, as published by their respective authors, though some of them will doubtless prove to be synonyms. Many species published by the earlier authors have never been properly illustrated, and as the descriptions of these species are often inadequate, it is next to impossible to identify many of them with certainty. These names have all been included in the list at their proper places, though many of them, doubtless, will finally be eliminated.

The first part of the bulletin is devoted to a list of the titles of papers from which references have been obtained. These are first arranged chronologically, followed by an alphabetical list of the authors, the years in which his publications have appeared being placed after each author's name. Following these lists is a tabulation of the genera of each class, with the number of species in each genus.

The second part of the bulletin is the bibliographic list proper, in which all North American Carboniferous genera of invertebrates have been arranged alphabetically, with the species arranged alphabetically under each genus. In the printing of this list a distinction is made in the type used for the species which have been illustrated and those which have not. All references which have not been actually examined are designated by an asterisk.

Special acknowledgment is due Mr. C. D. Walcott, who has furnished the means of publication of the list as a bulletin of the United States Geological Survey. To Mr. E. M. Kindle, of New Haven, Connecticut, acknowledgments are due for looking up some references in the Yale University library. The following gentlemen rendered aid by the loan of rare papers or by the donation of their own publications: Prof. H. S. Williams, Mr. Frank Springer, Prof. S. Calvin, Mr. W. F. E. Gurley, Capt. A. W. Vogdes, Mr. Gilbert van Ingen, Mr. R. R. Rowley, Dr. C. R. Keyes, Mr. E. O. Ulrich, and Sir J. W. Dawson. Acknowledgments are also due to the librarians of the Field Columbian Museum and of the Chicago Academy of Sciences, who have kindly permitted the compiler to have access to the books in their care.

S. W.

THE UNIVERSITY OF CHICAGO, *February 4, 1898.*

A BIBLIOGRAPHIC INDEX OF NORTH AMERICAN CARBONIFEROUS INVERTEBRATES.

By **STUART WELLER.**

PART I.

CHRONOLOGICAL CATALOGUE OF PAPERS CONTAINING DESCRIPTIONS AND ILLUSTRATIONS OF NORTH AMERICAN CARBONIFEROUS INVERTEBRATES.

1823.

SAY (T.). Paleontological notes. (Footnotes in Long's Exped. to Rocky Mts., Vol. I, pp. 84, 85, 106, 107, 146-152.)

1825.

SAY (T.). On two genera and several new species of Crinoidea. (Jour. Acad. Nat. Sci. Phil. (1), Vol. IV, pp. 289-296.)

1835.

CONRAD (T. A.). Description of five new species of fossil shells in the collection presented by Mr. Edward Miller to the Geological Society. (Trans. Geol. Soc. Penn., Vol. I, pt. 2, pp. 267-270, Pl. 12.)

TROOST (G.). On the *Pentremites rheinwardtii*, a new fossil; with remarks on the genus *Pentremites* (Say) and its geognostic position in the States of Tennessee, Alabama, and Kentucky. (Trans. Geol. Soc. Penn., Vol. I, pt. 2, pp. 224-231, Pl. 10.)

1836.

MORTON (S. G.). Notice and description of the organic remains embraced in the preceding paper. Appendix to paper entitled "Observations on the bituminous coal deposits of the valley of the Ohio and the accompanying rock strata, with notices of the fossil organic remains and the relics of vegetable and animal bodies, illustrated by a geological map, by numerous drawings of plants and shells, and by views of interesting scenery; by Dr. S. P. Hildreth, of Marietta, Ohio." (Am. Jour. Sci. (1), Vol. XXIX, pp. 149-154.)

1838.

SHEPARD (C. U.). Geology of Upper Illinois. (Am. Jour. Sci. (1), Vol. XXXIV, pp. 134-161.)

1842.

CONRAD (T. A.). Observations on the Silurian and Devonian systems of the United States, with descriptions of new organic remains. (Jour. Acad. Nat. Sci. Phil. (1), Vol. VIII, pp. 228-280, Pls. 12-17.)

1843.

CONRAD (T. A.). Observations on the lead-bearing limestone of Wisconsin, and descriptions of a new genus of trilobites and fifteen new Silurian fossils. (Proc. Acad. Nat. Sci. Phil., pp. 329-335.)

1844.

CONRAD (T. A.). Descriptions of eight new fossil shells of the United States. (Proc. Acad. Nat. Sci. Phil., pp. 173-175.)

OWEN (D. D.). Descriptions and figures of some organic remains supposed to be new. (Rep. Geol. Expl. of part of Wis., Iowa, and Minn. Appendix, pp. 69-86, Pls. 11-18.)

1846.

CONRAD (T. A.). Descriptions of new species of fossil and recent shells and corals. (Proc. Acad. Nat. Sci. Phil., pp. 19-27, Pl. 1.)

NORWOOD (J. G.) and OWEN (D. D.). Description of a remarkable fossil echinoderm, from the limestone formation of St. Louis, Missouri. (Am. Jour. Sci. (2), Vol. II, pp. 225-228.)

1847.

KONIECK (L. De). Recherches sur les animaux fossiles. Première partie. Monographie des genres Productus et Chonetes. (Pp. 1-246, Pls. 1-20.)

YANDELL (L. P.) and SHUMARD (B. F.). Contributions to the geology of Kentucky. (Pp. 1-36, Pl. 1.)

1848.

CHRISTY (D.). Letters on Geology; being a series of communications originally addressed to Dr. John Lock, of Cincinnati, giving an outline of the geology of the west and southwest, together with an essay on the erratic rocks of North America, addressed to M. De Verneuil. Illustrated by geological sections and engravings of some rare fossils. (Pp. 1-72, 1-11, Pls. 1-5, Sections 1-3.)

1850.

OWEN (D. D.) and SHUMARD (B. F.). Descriptions of fifteen new species of Crinoidea from the Subcarboniferous limestones of Iowa, Wisconsin, and Minnesota, in the years 1848-49. (Jour. Acad. Nat. Sci. Phil. (2), Vol. II, pp. 57-70, Pl. 7.)

1851.

- MILNE-EDWARDS and HAIME.** Monographie des polypiers fossiles des terrains paléozoïques, précédée d'un tableau général de la classification des polypes. (Archives du Muséum d'Histoire Naturelle, tom. V, pp. 1-502, Pls. 1-20.)

1852.

- HALL (J.).** Notes upon some of the fossils collected on the route from the Missouri River to the Great Salt Lake, and in the vicinity of the latter place, by the expedition under the command of Capt. Howard Stansbury, T. E. (Stansbury's Expl. and Surv. Vall. Gt. Salt Lake Utah, App. E., pp. 407-414, Pls. 1-4.)
- OWEN (D. D.).** Description of new and imperfectly known genera and species of organic remains, collected during the geological surveys of Wisconsin, Iowa, and Minnesota. (Owen's Geol. Rep. of Wis., Iowa, and Minn., pp. 578-587, Pls. 1-5, 7-8 A.)
- and **SHUMARD (B. F.).** Description of one new genus and twenty-two new species of Crinoidæ, from the Subcarboniferous limestone of Iowa. (Owen's Geol. Rep. of Wis., Iowa, and Minn., pp. 587-588, Pls. 5 A-5 B.)
- . Descriptions of seven new species of Crinoidæ from the Subcarboniferous limestone of Iowa and Illinois. (Jour. Acad. Nat. Sci. Phil. (2), Vol. II, pp. 89-94, Pl. 11.)
- ROEMER (F.).** Die Kreidebildungen von Texas und ihre organischen Einschlüsse. (Pp. 1-100, Pls. 1-11.)

1853.

- LEA (I.).** On some new fossil molluscs in the Carboniferous slates of the anthracite seams of the Wilkesbarre Coal Formation. (Jour. Acad. Nat. Sci. Phil. (2), Vol. II, pp. 203-206, Pl. 20.)

1854.

- CASEDAY (S. A.).** Beschreibung eines neuen Crinoidengeschlechts aus dem Kohlenkalkstein Nordamerikas. (Zeitschrift d. Deutsch. Geol. Ges., Bd. VI, pp. 237-242, Pl. 2.)
- DAWSON (J. W.).** Acadian Geology. The geological structure, organic remains, and mineral resources of Nova Scotia, New Brunswick, and Prince Edwards Island. First edition.
- SHUMARD (B. F.).** Description of the species of Carboniferous and Cretaceous fossils collected. (Marcy's Rep. of the U. S. Expl. of the Red River of Louisiana, App. E, pp. 173-185, Pls. 1-6.)

1855.

- LEA (I.).** Description of a new mollusk from the Red Sandstone near Pottsville, Pennsylvania. (Proc. Acad. Nat. Sci. Phil., pp. 340-341, Pl. 4.)

- NORWOOD (J. G.) and PRATTEN (H.).** Notice of the Producti found in the Western States and Territories, with descriptions of twelve new species. (Jour. Acad. Nat. Sci. Phil. (2), Vol. III, pp. 5-22, Pls. 1-2.)
- . Notice of the genus *Chonetes* as found in the Western States and Territories, with descriptions of eleven new species. (Jour. Acad. Nat. Sci. Phil. (2), Vol. III, pp. 23-32, Pl. 2.)
- . Notice of fossils from the Carboniferous series of the Western States, belonging to the genera *Spirifer*, *Bellerophon*, *Pleurotomaria*, *Macrocheilus*, *Natica*, and *Loxonema*, with descriptions of eight new characteristic species. (Jour. Acad. Nat. Sci. Phil. (2), Vol. III, pp. 71-77, Pl. 9.)
- SALTER (J. W.).** Account of the Arctic Carboniferous fossils. (In the "Last of the Arctic Voyages," by Sir Edward Belcher, C. B., Vol. II, pp. 377-389, Pl. 36.)
- SCHIEL (J.).** List and description of organic remains collected during the exploration of the Central Pacific Railroad line. (Pac. R. R. Rep., Vol. II, pp. 108-109, Pls. 1-4.)
- SHUMARD (B. F.).** Description of new species of organic remains. (First and Second Ann. Reps. of the Geol. Surv. Mo., by G. C. Swallow, pt. 2, pp. 185-208, Pls. A-C.)
- YANDELL (L. P.).** Description of a new genus of Crinoidea. (Am. Jour. Sci. (2), Vol. XX, pp. 135-137.)

1856.

- HALL (J.).** Description of new species of fossils from the Carboniferous limestones of Indiana and Illinois. (Trans. Albany Inst., Vol. IV, pp. 1-36.)
- . Descriptions and notices of the fossils collected upon the route. (Pacific R. R. Reports, Vol. III, pp. 99-105, Pls. 1-2.)

1857.

- CONRAD (T. A.).** Description of a new species of *Myacites*. (Proc. Acad. Nat. Sci. Phil., p. 166.)
- COX (E. T.).** A description of some of the most characteristic shells of the principal coal seams in the Western Basin of Kentucky. (Ky. Geol. Surv., Vol. III, pp. 566-576, Pls. 8-10.)
- HALL (J.).** Observations on the genus *Archimedes*, or *Fenestella*, with description of species, etc. (Proc. Am. Ass. Adv. Sci., Vol. X, pp. 176-180.)
- LYON (S. S.).** Description of new species of organic remains. (Ky. Geol. Surv., Vol. III, pp. 467-498, Pls. 1-5.)
- PROUT (H. A.).** Description of a new species of *Productus* from the Carboniferous limestone of St. Louis. (Trans. St. Louis Acad. Sci., Vol. I, pp. 43-45, Pl. 2.)

SHUMARD (B. F.). Description of new fossil Crinoidea from the Paleozoic rocks of the western and southern portions of the United States. (Trans. St. Louis Acad. Sci., Vol. I, pp. 71-80, Pl. 1.)

1858.

HALL (J.). Paleontology of Iowa. (Geol. Surv. Iowa, Vol. I, pt. 2, pp. 473-724, Pls. 1-29.)

MARCOU (J.). Paleontology. (Geology of North America; with two reports on the prairies of Arkansas and Texas, the Rocky Mountains of New Mexico, and the Sierra Nevada of California. Chap. III, pp. 32-53, Pls. 1-7.)

MEEK (F. B.) and HAYDEN (F. V.). Description of new organic remains from northeastern Kansas, indicating the existence of Permian rocks in that Territory. (Trans. Albany Inst. Vol. IV, pp. 73-88.)

———. Remarks on the Lower Cretaceous beds of Kansas and Nebraska, together with descriptions of some new species of Carboniferous fossils from the valley of Kansas River. (Proc. Acad. Nat. Sci. Phil., pp. 256-264.)

PROUT (H. A.). Description of new species of Bryozoa from Texas and New Mexico, collected by Dr. George G. Shumard, geologist of the United States expedition for boring artesian wells along the 32d parallel, under the direction of Capt. John Pope, U. S. Corps of Top. Eng. (Trans. St. Louis Acad. Sci., Vol. I, pp. 228-235.)

———. First of a series of descriptions of Carboniferous Bryozoa. (Trans. St. Louis Acad. Sci., Vol. I, pp. 235-237.)

———. Second series of descriptions of Bryozoa, from the Paleozoic rocks of the Western States and Territories. (Trans. St. Louis Acad. Sci., Vol. I, pp. 266-273.)

SHUMARD (B. F.). Descriptions of new species of Blastoida from the Paleozoic rocks of the Western States, with some observations on the structure of the summit of the genus *Pentremites*. (Trans. St. Louis Acad. Sci., Vol. I, pp. 238-248, Pl. 9.)

———. Notice of new fossils from the Permian strata of New Mexico and Texas, collected by Dr. George G. Shumard, geologist of the United States Government expedition for obtaining water by means of artesian wells along the 32d parallel, under the direction of Capt. John Pope, U. S. Corps Top. Eng. (Trans. St. Louis Acad. Sci., Vol. I, pp. 290-297.)

——— and **SWALLOW (G. C.).** Descriptions of new fossils from the Coal Measures of Missouri and Kansas. (Trans. St. Louis Acad. Sci., Vol. I, pp. 198-227.)

STEVENS (R. P.). Description of new Carboniferous fossils from the Appalachian, Illinois, and Michigan coal fields. (Am. Jour. Sci. (2), Vol. XXV, pp. 258-265.)

SWALLOW (G. C.) and HAWN (F.). The rocks of Kansas. (Trans. St. Louis Acad. Sci., Vol. I, pp. 173-197.)

1859.

- GABB (W. M.).** Descriptions of two new species of Carboniferous fossils, brought from Fort Belknap, Texas, by Dr. Moore. (Proc. Acad. Nat. Sci. Phil., p. 297.)
- HAUGHTON (S.).** Geological account of the Arctic Archipelago, drawn up principally from the specimens collected by Capt. F. L. McClintock, R. N., from 1849 to 1859. (Appendix to "The Voyage of the *Fox* in the Arctic Seas," by Capt. F. L. McClintock; also, Jour. Geol. Soc. Dublin, Vol. I, pp. 196-213.)
- LYON (S. S.) and CASSEDAY (S. A.).** Description of nine new species of Crinoidea from the Subcarboniferous rocks of Indiana and Kentucky. (Am. Jour. Sci. (2), Vol. XXVIII, pp. 233-246.)
- MEEK (F. B.) and HAYDEN (F. V.).** Geological explorations in Kansas Territory. (Proc. Acad. Nat. Sci. Phil., pp. 8-30.)
- PROUT (H. A.).** Third series of descriptions of Bryozoa from the Paleozoic rocks of the Western States and Territories. (Trans. St. Louis Acad. Sci., Vol. I, pp. 443-452, Pls. 15-18.)
- ROEMER (F.).** Doryerinus, ein neues Crinoiden-Geschlecht aus dem Kohlenkalke Nord-Americas. (Archiv für Naturgeschichte, Jahrg. 19, Bd. 1, pp. 207-220, Pl. 10.)
- SHUMARD (B. F.).** Notice of fossils from the Permian strata of Texas and New Mexico, obtained by the United States expedition under Capt. John Pope for boring artesian wells along the 32d parallel, with descriptions of new species from these strata and the Coal Measures of that region. (Trans. St. Louis Acad. Sci., Vol. I, pp. 387-402, Pl. 1.)

1860.

- CONRAD (T. A.) and GABB (W. M.).** Illustrations of some fossils described in the Proceedings of the Academy of Natural Science. (Proc. Acad. Nat. Sci. Phil., p. 55, Pl. 1.)
- DAWSON (J. W.).** On a terrestrial mollusk, a chilognathous myriapod, and some new species of reptiles, from the Coal formation of Nova Scotia. (Quart. Jour. Geol. Soc. Lond., Vol. XVI, pp. 268-277, Pls. 14-17.)
- HALL (J.).** Notes and observations upon the fossils of the Goniatic limestone in the Marcellus shale of the Hamilton Group, in the eastern and central parts of the State of New York, and those of the Goniatic beds of Rockford, Indiana; with some analogous forms from the Hamilton Group proper. (13th Rep. N. Y. State Cab. Nat. Hist., pp. 95-112; also supplementary note on p. 125.)
- . Observations upon a new genus of Crinoidea; *Cheirocrinus*. (13th Rep. N. Y. State Cab. Nat. Hist., pp. 121-124.)
- . Contributions to the palæontology of Iowa, being descriptions of new species of Crinoidea and other fossils. (Supp. to Vol. I, pt. 2, Geol. Rep. Iowa, pp. 1-92, Pls. 1-3.)

- LESQUERREUX (L.).** Description of new species of fossil plants collected in the shales overlying the subconglomerate coal of Arkansas. (2d Rep. Geol. Surv. Ark., pp. 308-314, Pls. 1-6.)
- LYON (S. S.).** Descriptions of four new species of Blastoidea, from the Subcarboniferous rocks of Kentucky. (Trans. St. Louis Acad. Sci., Vol. I, pp. 628-634, Pl. 20.)
- and **CASSEDAY (S. A.).** Description of nine new species of Crinoidea, from the Subcarboniferous rocks of Indiana and Kentucky. (Am. Jour. Sci. (2), Vol. XXIX, pp. 68-79.)
- MCCHESNEY (J. H.).** Descriptions of new species of fossils from the Palæozoic rocks of the Western States. (Pp. 1-76.)
- MEER (F. R.).** Descriptions of new fossil remains collected in Nebraska and Utah, by the exploring expeditions under the command of Capt. J. H. Simpson, of U. S. Topographical Engineers [extracted from the officer's forthcoming report]. (Proc. Acad. Nat. Sci. Phil., pp. 308-315.)
- and **HAYDEN (F. V.).** Descriptions of new organic remains from the Tertiary, Cretaceous, and Jurassic rocks of Nebraska. (Proc. Acad. Nat. Sci. Phil., pp. 175-185.)
- and **WORTHEN (A. H.).** Descriptions of new Carboniferous fossils from Illinois and other Western States. (Proc. Acad. Nat. Sci. Phil., pp. 447-472.)
- — —. Descriptions of new species of Crinoidea and Echinoidea from the Carboniferous rocks of Illinois, and other Western States. (Proc. Acad. Nat. Sci. Phil., pp. 379-397.)
- MILNE-EDWARDS (H.).** Histoire naturelle des Coralliaires ou Polypes proprement dits, Vol. III, pp. 1-560.
- PROUT (H. A.).** Fourth series of descriptions of Bryozoa from the Palæozoic rocks of the Western States and Territories. (Trans. St. Louis Acad. Sci., Vol. I, pp. 571-581.)
- SHUMARD (B. F.).** Description of five new species of Gastropoda from the Coal Measures, and a Brachiopod from the Potsdam sandstone of Texas. (Trans. St. Louis Acad. Sci., Vol. I, pp. 624-627.)
- SWALLOW (G. C.).** Descriptions of new fossils from the Carboniferous and Devonian rocks of Missouri. (Trans. St. Louis Acad. Sci., Vol. I, pp. 635-660.)
- WHITE (C. A.).** Observations upon the Geology and Paleontology of Burlington, Iowa, and its vicinity. (Jour. Bost. Soc. Nat. Hist., Vol. VII, pp. 209-235.)
- WORTHEN (A. H.).** Notice of a new species of Platycrinus and other fossils, from the Mountain limestone of Illinois and Iowa; being an extract from the Second Annual Report of the Illinois Geological Survey. (Trans. St. Louis Acad. Sci., Vol. I, pp. 569-571.)

1861.

- GABB (W. M.).** Descriptions of new species of American Tertiary fossils and a new Carboniferous cephalopod from Texas. (Proc. Acad. Nat. Sci. Phil., pp. 367-372.)
- HALL (J.).** Descriptions of new species of Crinoidea and other fossils, from the Carboniferous rocks of the Mississippi Valley. (Pp. 1-18.)
- . Descriptions of new species of Crinoidea from the Carboniferous rocks of the Mississippi Valley. (Jour. Bost. Soc. Nat. Hist., Vol. VII, pp. 261-328.)
- McCHESNEY (J. H.).** Descriptions of new fossils from the Palæozoic rocks of the Western States, from the transactions of the Chicago Academy of Sciences, October 11, 1859. Contributed by J. H. McChesney. Extract No. 2. (Pp. 77-96.)
- MEEK (F. B.) and WORTHEN (A. H.).** Descriptions of new Palæozoic fossils from Illinois and Iowa. (Proc. Acad. Nat. Sci. Phil., pp. 128-148.)
- NEWBERRY (J. S.).** Paleontology. (Chap. 11 of Lieutenant Ives's Report on the Colorado River of the West, pp. 116-129, pls. 1-2.)
- ROEMER (F.).** Ueber den Bau von Melonites multipora, ein Echinid des amerikanischen Kohlenkalkes. (Archiv für Naturgeschichte, Jahrg. 21, Bd. 1, pp. 312-330, Pl. 12.)

1862.

- JONES (T. R.).** A monograph of the fossil Estheriæ. (Paleontographical Society, Vol. XIV, pp. 1-134, Pls. 1-5.)
- LYON (S. S.) and CASSEDAY (S. A.).** Description of two genera and eight new species of fossil Crinoidea, from the rocks of Indiana and Kentucky. (Proc. Am. Acad. Arts and Sci. Boston, Vol. V, pp. 16-31.)
- OWEN (R.).** Description of fossils. (Geol. Reconnaissance of Indiana, pp. 362-365.)
- WHITE (C. A.).** Description of new species of fossils from the Devonian and Carboniferous rocks of the Mississippi Valley. (Proc. Bost. Soc. Nat. Hist., Vol. IX, pp. 8-33.)
- . Observations on the summit structure of Pentremites, the structure and arrangement of certain parts of crinoids, and descriptions of new species, from the Carboniferous rocks at Burlington, Iowa. (Jour. Bost. Soc. Nat. Hist., Vol. VII, pp. 481-506.)
- and **WHITFIELD (R. P.).** Observations upon the rocks of the Mississippi Valley which have been referred to the Chemung Group of New York, together with descriptions of new species of fossils from the same horizon at Burlington, Iowa. (Proc. Bost. Soc. Nat. Hist., Vol. VIII, pp. 289-306.)

WINCHELL (A.). Descriptions of fossils from the Marshall and Huron groups of Michigan. (Proc. Acad. Nat. Sci. Phil., pp. 405-430.)

——— Notice of the rocks lying between the Carboniferous limestone of the Lower Peninsula of Michigan and the limestones of the Hamilton Group; with descriptions of some Cephalopods supposed to be new to science. (Am. Jour. Sci. (2), Vol. XXXIII, pp. 352-366.)

1863.

BILLINGS (E.). Description of a new species of *Phillipsia*, from the Lower Carboniferous rocks of Nova Scotia. (Can. Nat., Vol. VIII, pp. 209-210.)

DAVIDSON (T.). On the Lower Carboniferous Brachiopoda of Nova Scotia. (Quart. Jour. Geol. Soc. Lond., Vol. XIX, pp. 158-175, Pl. 9.)

HALL (J.). Observations upon the genera *Uphantænia* and *Dictyophyton*; with notices of some species from the Chemung Group of New York and the Waverly sandstone of Ohio. (16th Rep. N. Y. State Cab. Nat. Hist., pp. 84-91.)

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- HERRICK (C. L.).** Notes upon the Waverly Group in Ohio. (Am. Geol., Vol. III, pp. 94-99, Pls. 1-4.)
- KEYES (C. R.).** Lower Carbonic Gasteropoda from Burlington, Iowa. (Proc. Acad. Nat. Sci. Phil., pp. 284-298.)
- . The American species of *Polyphemopsis*. (Proc. Acad. Nat. Sci. Phil., pp. 299-302.)
- . *Sphærodoma* a genus of fossil Gasteropods. (Proc. Acad. Nat. Sci. Phil., pp. 303-309.)
- . Variation exhibited by a Carbonic Gasteropod. (Am. Geol., Vol. III, pp. 330-333.)
- . The subgeneric groups of *Naticopsis*. (Am. Geol., Vol. IV, pp. 193-196.)
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- . North American species of *Strophalosia*. (Am. Jour. Sci. (3), Vol. XL, pp. 240-246, Pl. 9.)
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- CALVIN (S.).** Some new species of Palæozoic fossils. (Bull. Lab. Nat. Hist., State Univ. Iowa, Vol. I, pp. 173-181, Pls. 1-3.)
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- HALL (J.).** Fossil Dictyospongidae of the Devonian and Carboniferous formations. New forms of Dictyospongidae from the Chemung Group. (9th Ann. Rep. N. Y. State Geol., pp. 56-60.)
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- . Certain forms of *Straparollus* from southeastern Iowa. (Am. Geol., Vol. V, pp. 193-197, Pl. 1.)
- . Generic relations of *Platyceras* and *Capulus*. (Am. Geol., Vol. VI, pp. 6-9.)
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- BOWLEY (R. R.).** *Batocrinus calvini*. Description of a new species of Burlington crinoid. (Am. Geol., Vol. V, pp. 146-147.)
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- SCUDDER (S. H.).** New types of cockroaches from the Carboniferous deposits of the United States. (Mem. Bost. Soc. Nat. Hist., Vol. IV, pp. 401-415, Pls. 31-32, and Foss. Insc. N. A., Vol. I, pp. 377-391, Pls. 23-24.)
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- . An inquiry into the zoological relations of the first-discovered traces of fossil neuropterous insects in North America; with remarks on the difference of structure on the wings of living Neuroptera. (Foss. Insc. N. A., Vol. I, pp. 1-20, Pl. 1.)
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- SCUDDER (S. H.).** Paleozoic cockroaches; a complete revision of the species of both worlds, with an essay toward their classification. (Foss. Insc. N. A., Vol. I, pp. 43-153, Pls. 2-6.)
- . Archipolypoda, a subordinal type of spined myriapods from the Carboniferous formation. Foss. Insc. N. A., Vol. I, pp. 195-234, Pls. 7a-10.)
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- . The species of *Mylacris*; a Carboniferous genus of cockroaches. (Foss. Insc. N. A., Vol. I, pp. 265-273, Pl. 13.)
- . Palaeodictyoptera; or the affinities and classification of Paleozoic Hexapoda. (Foss. Insc. N. A., Vol. I, pp. 283-315, Pls. 15-18.)
- . Note on the supposed myriapodan genus *Trichiulus*. (Foss. Insc. N. A., Vol. I, p. 330.)
- ULRICH (E. O.).** Sponges of the Devonian and Carboniferous systems. (Geol. Surv. Ill., Vol. VIII, pp. 243-251, Pls. 3, 6, 7.)
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- WACHSMUTH (C.) and SPRINGER (F.).** New species of crinoids and blastoids from the Kinderhook Group of the Lower Carboniferous rocks at Le Grand, Iowa. (Geol. Surv. Ill., Vol. VIII, pp. 155-205, Pls. 15-17.)
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- HERRICK (C. L.).** The Cuyahoga shale and the problem of the Ohio Waverly. (Bull. Geol. Soc. Am., Vol. II, pp. 31-48, Pl. 1.)
- HYATT (A.).** Carboniferous cephalopods. (2d Ann. Rep. Geol. Surv. Texas, pp. 327-356.)
- KEYES (C. B.).** Fossil faunas in central Iowa. (Proc. Acad. Nat. Sci. Phil., pp. 242-265.)
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- . A description of some Lower Carboniferous crinoids from Missouri. (Bull. No. 4 Geol. Surv. of Mo., pp. 1-40, Pls. 1-5.)

- ROWLEY (R. R.) and HARE (S. J.).** Description of some new species of Echinodermata from the Subcarboniferous rocks of Pike County, Missouri. (The Kansas City Scientist, Vol. V, pp. 97-103, Pl. 2.)
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- VOGDES (A. W.).** On some new *Sedalia* trilobites. (Trans. St. Louis Acad. Sci., Vol. V, pp. 615-618, Pl. 15.)
- WHITE (C. A.).** The Texan Permian and its Mesozoic types of fossils. (Bull. U. S. G. S., No. 77, pp. 1-39, Pls. 1-4.)
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- . An introduction to the study of the Brachiopoda, intended as a handbook for the use of students. Part I. (11th Ann. Rep. N. Y. State Geol., pp. 133-300 (1-223), Pls. 1-22.)
- KEYES (C. R.).** Contribution to the fauna of the Lower Coal Measures of central Iowa. (Proc. Iowa Acad. Sci., Vol. I, pt. 2, pp. 22-23.)
- . The *Platyceras* Group of Palæozoic gasteropoda. (Am. Geol. Vol. X, pp. 273-277.)
- MILLER (S. A.).** Palæontology. (17th Rep. Geol. Surv. Ind., pp. 611-705, Pls. 1-20.)
- . Palæontology. (Adv. sheets, 18th Rep. Geol. Surv. Ind., pp. 1-79, Pls. 1-12.)
- and **FABER (C.).** Description of some Subcarboniferous and Carboniferous Cephalopoda. (Jour. Cin. Soc. Nat. Hist., Vol. XIV, pp. 164-168, Pl. 6.)
- . Some new species and new structural parts of fossils. (Jour. Cinn. Soc. Nat. Hist., Vol. XV, pp. 79-87, Pl. 1.)
- WHITFIELD (R. P.).** Discovery of a second example of the macruran decapod crustacean, *Palæopalæmon newberryi*. (Am. Geol. Vol. IX, pp. 237-238.)

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- HAY (R.).** Notes on some new species of fossil Cephalopoda. (Trans. Kansas Acad. Sci., Vol. XIII, pp. 37-47.)
- HYATT (A.).** Carboniferous cephalopods. Second paper. (4th Ann. Rep. Geol. Surv. Texas, pp. 377-474.)
- MILLER (S. A.) and GURLEY (W. F. E.).** Description of some new species of invertebrates from the Palæozoic rocks of Illinois and adjacent States. (Bull. No. 3, Ill. State Mus. Nat. Hist., pp. 1-81, Pls. 1-8.)
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GENERAL SUMMARY OF CLASSES AND GENERA.

PROTOZOA AND SPONGES.

Genera.	No. of species.	Genera.	No. of species.
Amblysiphonella	1	Lasiodadia	1
Batospongia	1	Loftusia	1
Belemnospongia	1	Lyrodictya	1
Biopalla	8	Megastroma	1
Chidariospongia	1	Miliolites	2
Cleodictya	2	Nodosinella	1
Conopterium	1	Nullipora	1
Cucumulites	2	Palaeacia	6
Dictyophyton	6	Phragmodictya	3
Ectenodictya	4	Physospongia	3
Endothyra	2	Ptychostylus	2
Fusulina	6	Thamnodictya	1
Hystriospongia	1	Valvulina	5

CORALS.

Acervularia	1	Filicites	1
Amplexus	7	Hadrophyllum	3
Anisophyllum	1	Leptopora	2
Aulopora	1	Lithostrotion	8
Axophyllum	2	Lophophyllum	3
Campophyllum	3	Michelinia	2
Chaetetes	4	Microcyclus	1
Chonophyllum	1	Millepora	1
Clisiophyllum	2	Pleurodictyum	1
Cyathaxonia	2	Striatopora	1
Cyathophyllum	4	Stylastrea	1
Cystelasma	1	Syringopora	2
Dictyonema	1	Trachypora	1
Faviphyllum	1	Trochophyllum	1
Favosites	2	Zaphrentis	37

CYSTOIDEA.

Agelacrinus	4	Echinodiscus	3
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BLASTOIDEA.

Codaster	5	Orophocrinus	8
Cryptoblastus	4	Pentremites	32
Granatocrinus	14	Phaenoscisma	1
Heteroblastus	1	Schizoblastus	7
Mesoblastus	1	Tricelocrinus	3
Metablastus	6	Troostocrinus	1

General summary of classes and genera—Continued.

CRINOIDEA.

Genera.	No. of species.	Genera.	No. of species.
Abrotocrinus	1	Graphiocrinus	9
Acrocrinus	3	Halysiocrinus	5
Actinocrinus	44	Hydreionocrinus	12
Agaricocrinus	35	Ichthyocrinus	6
Agassizocrinus	11	Leocythiocrinus	2
Allagecrinus	2	Lobocrinus	11
Alloprosallocrinus	3	Macrocrinus	6
Amphorocrinus	8	Megistocrinus	3
Aorocrinus	10	Melocrinus	2
Atelestocrinus	2	Mespilocrinus	2
Baryocrinus	33	Missouricrinus	1
Batocrinus	132	Nipterocrinus	2
Belemnocrinus	5	Onychocrinus	11
Blaiocrinus	1	Parisocrinus	4
Bursacrinus	2	Periechocrinus	2
Cactocrinus	23	Phialocrinus	6
Calceocrinus	1	Physetocrinus	7
Camptocrinus	2	Platycrinus	97
Catillocrinus	3	Poteriocrinus	56
Cerlocrinus	6	Pterotocrinus	11
Cœliocrinus	5	Rhodocrinus	20
Cromyocrinus	4	Sampsonocrinus	1
Cyathocrinus	41	Scaphiocrinus	76
Decadocrinus	15	Scytalocrinus	13
Dichocrinus	32	Steganoocrinus	11
Dizygocrinus	22	Stemmatocrinus	1
Dorycrinus	15	Strotocrinus	5
Eretmocrinus	22	Synbathocrinus	12
Erisocrinus	4	Talarocrinus	9
Eucladocrinus	6	Taxocrinus	20
Eupachycrinus	21	Teleocrinus	6
Eutrochocrinus	4	Ulocrinus	4
Forbesiocrinus	12	Vasocrinus	2
Gilbertocrinus	9	Woodocrinus	21
Goniocrinus	1	Zocrinus	25

ASTEROIDEA.

Aganaster	1	Paleaster	1
Cholaster	1	Schœnaster	3
Compsaster	1	Tremataster	1
Onychaster	5		

ECHINOIDEA.

Archæocidaris	22	Melonites	7
Eocidaris	2	Oligoporus	9
Hybochinus	1	Perischodonus	1
Lepidechinus	2	Pholidocidaris	2
Lepidesthes	4	Rhœchinus	2
Lepidocidaris	1		

General summary of classes and genera—Continued

VERMES.

Genera.	No. of species.	Genera.	No. of species.
Cornulites	1	Serpulites	5
Serpula	1	Spirorbis	9

BRYOZOA.

Acanthocladia	2	Hemitrypa	8
Acanthoclema	1	Heterodictya	1
Artinotrypa	1	Leioclema	6
Anisotrypa	4	Lyropora	7
Archimedes	17	Meekopora	4
Bactropora	1	Pinnatopora	15
Batostomella	4	Polypora	20
Berenicea	1	Prismopora	5
Chamaodictyon	2	Proutella	1
Cheilotrypa	1	Ptilodictya	1
Celoconus	2	Ptilopora	5
Coccinium	4	Ramipora	1
Cyclopora	2	Rhombopora	25
Cycloporella	2	Septopora	11
Cystodictya	10	Sphragiopora	1
Dichotrypa	5	Stenopora	18
Diplopora	2	Stictopora	1
Eridopora	2	Stictoporella	2
Echara	2	Streblotrypa	12
Evactinopora	4	Strotopora	2
Fenestella	48	Tæniodictya	6
Fenestralia	2	Thamnisus	6
Fistulipora	6	Trematopora	3
Glyptopora	10	Worthenopora	2
Heliotrypa	1		

BRACHIOPODA.

Acambona	2	Cyrtina	4
Ambocoelia	3	Derbya	11
Athyris	15	Dielasma	11
Atrypa	1	Enteleles	1
Aulacorhynchus	1	Eumetria	3
Barroisella	1	Glossina	4
Beecheria	1	Hartina	1
Camarophorella	1	Hustedia	4
Camarophoria	10	Lelorrhynchus	2
Camarotoechia	5	Leptæna	2
Centronella	3	Lingula	16
Chonetes	22	Lingulodiscina	3
Chonetes	1	Martina	2
Cleiothyris	10	Meekella	3
Conchidium	1	Orbiculoidea	20
Crania	6	Orthis	1
Cranella	1	Orthothetes	6
Cryptacanthia	1	Productella	6
Cryptonella	3	Productus	106

General summary of classes and genera—Continued.

BRACHIOPODA—Continued.

Genera.	No. of species.	Genera.	No. of species.
Ptychospira	2	Seminula	11
Pugnax	12	Spirifer	75
Reticularia	10	Spiriferina	16
Retzia	2	Streptorhynchus	2
Rhipidomella	15	Stricklandinia	1
Rhynchonella	32	Strophalosia	7
Rhynchopora	1	Strophomena	1
Rhynchospira	2	Syringothyris	8
Romingerina	1	Terebratula	7
Schizophoria	3	Torynifer	1

PELECYPODA.

Allorisma	32	Lunulicardium	1
Anatina	1	Lyriopecten	1
Anthracomya	5	Macrodon	20
Arca	4	Martesia	1
Astartella	5	Microdon	10
Avicula	14	Modiola	7
Aviculopecten	73	Modiomorpha	5
Aviculopinna	2	Monopteria	4
Axinus	1	Monotis	5
Bakevellia	4	Myalina	30
Blairella	1	Mytilarca	3
Carbonarca	1	Mytilus	2
Carbonicola	2	Naiadites	5
Cardinia	9	Nucula	17
Cardiola	1	Nuculana	14
Cardiomorpha	14	Nuculites	2
Cardiopsis	3	Oracardia	2
Cardium	1	Orthonota	2
Chænocardia	1	Ostrea	1
Chænomya	6	Palæoneilo	14
Clinopistha	2	Palæosolen	1
Conocardium	15	Pararca	2
Crenipecten	6	Pernopecten	7
Cypricardia	9	Pholadella	1
Cypricardinia	5	Pinna	11
Dexiobia	3	Placunopsis	2
Edmondia	35	Pleurophorus	15
Elymella	2	Posidonia	4
Euchondria	1	Posidonomya	9
Glossites	1	Promacrus	5
Goniodon	1	Prothyris	2
Goniophora	1	Pseudomonotis	4
Grammysia	8	Pterinea	7
Isocardia	2	Pterinopecten	6
Leiopteria	6	Pteronites	6
Leptodesma	2	Ptychopteria	1
Lima	2	Sanguinolaria	5
Limatulina	1	Sanguinolites	23
Lithophaga	3	Schizodus	38

General summary of classes and genera—Continued.

PELECYPODA—Continued.

Genera.	No. of species.	Genera.	No. of species.
Sedgwickia	4	Sphenotus	8
Solen	1	Spirodomus	1
Solenomya	12	Streblopteria	5
Solenopsis	3	Tellinomya	1
Spathella	1	Yoldia	7

GASTROPODA.

Acisina	5	Naticopsis	12
Ampullaria	1	Omphalotrochus	2
Anomphalus	1	Orthonema	4
Anthracopupa	1	Orthonychia	6
Bellerophon	53	Phanerotinus	3
Bulimorpha	10	Physa	1
Capulus	19	Platyschisma	2
Chiton	2	Pleurotomaria	84
Cyclonema	3	Porcellia	5
Cyrtolites	1	Pupa	4
Dawsonella	1	Rotella	1
Dentalium	12	Soleniscus	20
Eotrochus	1	Sphaerodoma	10
Holopea	5	Straparollus	30
Holopella	1	Streptaxis	1
Igoceras	5	Strophostylus	10
Lepetopsis	3	Trachydomia	4
Lioxonema	25	Trochita	1
Metoptoma	2	Turbo	5
Mikrodoma	1	Zaptychius	1
Murchisonia	27	Zonites	1

PTEROPODA.

Coleolus	1	Hyolithes	3
Conularia	25		

CEPHALOPODA.

Actinoceras	1	Goniatites	51
Apheloceras	1	Gyroceras	2
Asymptoceras	3	Koninckioceras	1
Branoceras	1	Leuroceras	1
Coloceras	2	Medlicottia	1
Cyrtoceras	9	Metaceras	6
Diacites	1	Munatoceras	2
Domatoceras	5	Nautilus	25
Edaphoceras	1	Oncodoceras	1
Endolobus	3	Orthoceras	42
Ephippioceras	2	Paralegoceras	1
Gastrioceras	7	Phacoceras	1
Glyptioceras	4	Phragmoceras	2
Gomphoceras	2	Popanoceras	2

General summary of classes and genera—Continued.

BRACHIOPODA—Continued.

Genera.	No. of species.	Genera.	No. of species.
Ptychospira	2	Seminula	11
Pugnax	12	Spirifer	75
Reticularia	10	Spiriferina	16
Retzia	2	Streptorhynchus	2
Rhipidomella	15	Stricklandinia	1
Rhynchonella	32	Strophalosia	7
Rhynchopora	1	Strophomena	1
Rhynchospira	2	Syringothyris	8
Romingerina	1	Terebratula	7
Schizophoria	3	Torynifer	1

PELECYPODA.

Allorisma	32	Lunulicardium	1
Anatina	1	Lyriopecten	1
Anthracomya	5	Macrodon	20
Arca	4	Martesia	1
Astartella	5	Microdon	10
Avicula	14	Modiola	7
Aviculopecten	73	Modiomorpha	5
Aviculopinna	2	Monopteria	4
Axinus	1	Monotis	5
Bakevellia	4	Myalina	30
Blairella	1	Mytilarca	3
Carbonarca	1	Mytilus	2
Carbonicola	2	Naiadites	5
Cardinia	9	Nucula	17
Cardiola	1	Nuculana	14
Cardiomorpha	14	Nuculites	2
Cardiopsis	3	Oracardia	2
Cardium	1	Orthonota	2
Chænocardia	1	Ostrea	1
Chænomya	6	Palaoneilo	14
Clinopistha	2	Palaosolen	1
Conocardium	15	Pararca	2
Crenipecten	6	Pernopecten	7
Cypricardia	9	Pholadella	1
Cypricardinia	5	Pinna	11
Dextlobia	3	Placunopsis	2
Edmondia	35	Pleurophorus	15
Elymella	2	Posidonia	4
Euchondria	1	Posidonomya	9
Glossites	1	Promacrus	5
Goniodon	1	Prothyris	2
Goniophora	1	Pseudomonotis	4
Grammysia	8	Pterinea	7
Isocardia	2	Pterinopecten	6
Leiopteria	6	Pteronites	6
Leptodesma	2	Ptychopteria	1
Lima	2	Sanguinolaria	5
Limatulina	1	Sanguinolites	23
Lithophaga	3	Schizodus	28

General summary of classes and genera—Continued.

PELECYPODA—Continued.

Genera.	No. of species.	Genera.	No. of species.
Sedgwickia	4	Sphenotus	8
Solen	1	Spirodomus	1
Solenomya	12	Streblopteria	5
Solenopsis	3	Tellinomya	1
Spathella	1	Yoldia	7

GASTROPODA.

Actiaina	5	Naticopsis	12
Ampullaria	1	Omphalotrochus	2
Anomphalus	1	Orthonema	4
Anthracopupa	1	Orthonychia	6
Bellerophon	53	Phanerotinus	3
Bulimorpha	10	Physa	1
Capulus	19	Platyschisma	2
Chiton	2	Pleurotomaria	84
Cyclonema	3	Porcellia	5
Cyrtolites	1	Pupa	4
Dawsonella	1	Rotella	1
Dentalium	12	Soleniscus	20
Eotrochus	1	Sphaerodoma	10
Holopea	5	Straparollus	30
Holopella	1	Streptaxis	1
Igoceras	5	Strophostylus	10
Lepetopsis	3	Trachydomia	4
Lioxonema	25	Trochita	1
Metoptoma	2	Turbo	5
Microdoma	1	Zaptychius	1
Murchisonia	27	Zonites	1

PTEROPODA.

Coleolus	1	Hyolithes	3
Conularia	25		

CEPHALOPODA.

Actinoceras	1	Goniatites	51
Apheloceras	1	Gyroceras	2
Asymptoceras	3	Koninckioceras	1
Branoceras	1	Leuroceras	1
Coloceras	2	Medlicottia	1
Cyrtoceras	9	Metacoceras	6
Discites	1	Munsteroceras	2
Domatoceras	5	Nautilus	25
Edaphoceras	1	Oncodoceras	1
Endolobus	3	Orthoceras	42
Ephippioceras	2	Paralegoceras	1
Gastrioceras	7	Phacoceras	1
Glyphioceras	4	Phragmoceras	2
Gomphoceras	2	Popanoceras	2

General summary of classes and genera—Continued.

CEPHALOPODA—Continued.

Genera.	No. of species.	Genera.	No. of species.
Poterioceras	2	Tainoceras	3
Pronorites	1	Temnocheilus	8
Remeleceras	1	Thrinoceras	2
Solenoceras	1	Titanoceras	1
Solenocellus	6	Trematoceras	10
Stearoceras	1	Triboloceras	1
Stroboceras	3	Waagenoceras	1

TRILOBITA.

Brachymetopus	5	Phillipsia	17
Dalmanites	1	Proetus	10
Griffithides	7		

CRUSTACEA (NOT TRILOBITES).

Acanthotelson	2	Dithyrocaris	1
Anthrapalaemon	2	Easteria	1
Archæocaris	1	Eurypterus	5
Bairdia	1	Kirkbya	5
Belinurus	1	Leala	3
Beyrichia	7	Leperditia	5
Bollia	1	Macrocaris	1
Candona	1	Mesothyra	1
Carbonia	3	Moorea	1
Ceratlocaris	1	Palaecaris	1
Colpocaris	3	Palaepalaemon	1
Cryptozoe	1	Pontocypris	1
Cyclus	1	Prestwichia	3
Cypridina	1	Primitia	5
Cythere	5	Rachura	1
Cytherella	2	Rusichnites	2
Cytherellina	1	Solenocaris	2
Dipeltis	1	Tropidocaris	1
Diploctylus	1	Ulrichia	2

ARACHNOIDEA.

Anthracomartus	3	Geratarbus	2
Architarbus	2	Graephonus	1
Arthrolycosa	1	Kustarachne	1
Eoscorpis	1	Mazonia	1
Geralinura	1	Poliocera	1
Geraphrynus	1		

MYRIAPODA.

Acantherpestes	2	Ilyodes	2
Amynilyspes	1	Latzelia	1
Anthracerpes	1	Palaecampa	1
Archilus	2	Palenarthrus	1
Elleticus	2	Xylobius	6
Euphoberia	11		

General summary of classes and genera—Continued.

INSECTA.

Genera.	No. of species.	Genera.	No. of species.
Adiphebia	1	Lithomylacris	4
Æthophebia	1	Megathentomum	1
Anthracoablattina	2	Miamia	1
Anthracothrenna	1	Microblattina	1
Archegogryllus	1	Mylacris	14
Archimylacris	3	Necymylacris	2
Cheliphlebia	2	Oryctoblattina	2
Chrestotes	1	Paolia	4
Didymophleps	1	Paralogus	1
Dieconcura	2	Paromylacris	5
Etioblattina	66	Petrablattina	2
Eucænus	1	Phthanocoris	1
Genopteryx	1	Polyernus	2
Genentomum	1	Poroblattina	5
Gerablattina	21	Progonoblattina	1
Gerapompus	2	Promylacris	4
Gerarus	3	Propteticus	1
Haplophlebius	2	Rhaphidiopsis	1
Hemeristia	1	Titanophama	1

RÉSUMÉ OF CLASSES AND GENERA.

	Genera.	Species.
Protozoa and sponges	26	64
Corals	30	98
Cystoidea	2	7
Blastoidea	12	83
Crinoidea	70	1,021
Asteroidea	7	13
Echinoidea	11	53
Vermes	4	16
Bryozoa	49	308
Brachiopoda	58	503
Pelecypoda	88	623
Gastropoda	42	386
Pteropoda	3	29
Cephalopoda	42	221
Trilobita	5	40
Crustacea (not Trilobites)	38	78
Arachnoidea	11	15
Myriopoda	11	30
Insecta	38	166
Total number	547	3,754

PART II.

BIBLIOGRAPHIC LIST OF GENERA AND SPECIES OF NORTH AMERICAN CARBONIFEROUS INVERTEBRATES, ARRANGED ALPHABETICALLY.

ABROTOCRINUS Miller and Gurley, 1890.

Abrotocrinus cymosus Miller and Gurley.

1890. *Abrotocrinus cymosus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind.,
p. 350, pl. 5, fig. 2.
Keokuk Group: Washington County, Indiana.

ACAMBONA White, 1862.

Acambona osagensis Swallow.

1860. *Retzia osagensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 653.
Chemung rocks: Cooper and Benton counties, Missouri.
1894. *Eumetria? osagensis*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl.
37, figs. 7-9.
Chouteau L. S.: Pike County, Missouri.
1894. *Retzia? osagensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 94.
Kinderhook Group: Cooper County, Missouri.
1895. *Acambona? osagensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 51, figs.
38, 39.
Chouteau L. S.: Pike County, Missouri.

Acambona prima White.

1862. *Acambona prima*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 27, figs. 1, 2.
L. Burlington L. S.: Burlington, Iowa.
1894. *Acambona prima*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 37,
figs. 21, 22.
Burlington L. S.: Burlington, Iowa.
1895. *Acambona prima*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 51, figs. 40, 41.
Burlington L. S.: Burlington, Iowa.

ACANTHERPESTES Meek and Worthen, 1868.

Acantherpestes inequalis Scudder.

1890. *Acantherpestes inequalis*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, pp. 424,
425, pl. 33, figs. 2-4.
Carboniferous: Mazon Creek, Illinois.
1890. *Acantherpestes inequalis*. Scudder, Foss. Insc. N. A., vol. 1, pp. 400, 401, pl. 25,
figs. 2-4.
Carboniferous: Mazon Creek, Illinois.

Acantherpestes major Meek and Worthen.

1868. *Euphoberia major*. Meek and Worthen, Am. Jour. Sci. (2), vol. 46, p. 26.
Coal Measures: Mazon Creek, Grundy County, Illinois.
1868. *Euphoberia? major*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 558, fig.
Coal Measures.

Acantherpestes major Meek and Worthen—Continued.

1882. *Acantherpestes major*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, pp. 150-156, pl. 10, 11, figs. 1-4, 6-8, 10, 11.
Carboniferous: Mazon Creek, Illinois.
1890. *Acantherpestes major*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 424.
1890. *Acantherpestes major*. Scudder, Foss. Insc. N. A., vol. 1, pp. 202-208, 400, pl. 7a, 8, figs. 1-4, 6-8, 10, 11.
Carboniferous: Mazon Creek, Illinois.

ACANTHOCLADIA King, 1849.**Acanthocladia americana** Shumard.

1858. *Acanthocladia anceps* (?) Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 180.
L. Permian: Valley of Cottonwood, Kansas.
1859. *Acanthocladia americana*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 388.
Gray Permian L. S.: Guadalupe Mountains.
1859. *Acanthocladia americana*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 24.
Upper Coal Measures: Cottonwood Creek, Kansas.

Acanthocladia fruticosa Ulrich.

1890. *Acanthocladia fruticosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 635, pl. 65, figs. 2, 2c.
Upper Coal Measures: Near Springfield, Illinois.

ACANTHOCLEMA Hall, 1887.**Acanthoclema confluens** Ulrich.

1888. *Rhombopora confluens*. Ulrich, Bull. Den. Univ., vol. 4, p. 91, pl. 14, fig. 17.
Cuyahoga Shale: Lodi, Ohio.
Keokuk Group: Warsaw, Illinois.
1890. *Acanthoclema confluens*. Ulrich, Geol. Surv. Ill., vol. 8, p. 662, pl. 70, figs. 5, 5b.
Keokuk Group: Nauvoo, Illinois.

ACANTHOTELSON Meek and Worthen, 1860.

Acanthotelson eveni Meek and Worthen. See *Acanthotelson stimpsoni*.

Acanthotelson inequalis Meek and Worthen. See *Palæocaris typus*.

Acanthotelson ? magister Packard.

1886. *Acanthotelson ? magister*. Packard, Mem. Nat. Acad. Sci., vol. 3, pt. 2, p. 127, pl. 1, fig. 2; pl. 2, figs. 4, 5.
Carboniferous: Mazon Creek, Illinois.

Acanthotelson stimpsoni Meek and Worthen.

1865. *Acanthotelson Stimpsoni*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 47.
Coal Measures: Morris, Illinois.
1866. *Acanthotelson Stimpsoni*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 401, pl. 32, figs. 6-6f.
Lower Coal Measures: Morris, Grundy County, Illinois.
1868. *Acanthotelson Eveni*. Meek and Worthen, Am. Jour. Sci. (2), vol. 46, p. 28.
Coal Measures: Mazon Creek, Grundy County, Illinois.
1868. *Acanthotelson Stimpsoni*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 549, figs. A-B.
Coal Measures: Mazon Creek, Grundy County, Illinois.

Acanthotelson stimpsoni Meek and Worthen—Continued.

1868. *Acanthotelson Ereni*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 551, figs. A-D.
 Coal Measures: Mazon Creek, Grundy County, Illinois.
1880. *Acanthotelson Stimpsoni*. Brocchi, Bull. Soc. Geol. France (3), vol. 8, p. 10, pl. 1, fig. 11.
1884. *Acanthotelson Stimpsoni*. White, 13th Rep. Geol. Surv. Ind., p. 176, pl. 37, figs. 4, 5.
 Coal Measures: Grundy County, Illinois.
1884. *Acanthotelson Ereni*. White, 13th Rep. Geol. Surv. Ind., p. 177, pl. 38, figs. 4-7.
 Coal Measures: Grundy County, Illinois.
1886. *Acanthotelson Stimpsoni*. Packard, Mem. Nat. Acad. Sci., vol. 3, pt. 2, p. 123, pl. 1, figs. 1-1d; pl. 2, figs. 1-3.
 Carboniferous: Mazon Creek, Illinois.

ACERVULARIA Schweigger, 1820.**Acervularia adjunctiva** White.

1880. *Acervularia adjunctiva*. White, Proc. U. S. Nat. Mus., vol. 2, p. 255, pl. 1, figs. 1-3.
 Carboniferous: Blackfoot Range, south of Yellowstone National Park.
1880. *Acervularia adjunctiva*. White, Cont. to Pal., No. 6, p. 120, pl. 35, figs. 1a-d.
 Carboniferous: Blackfoot Range, south of Yellowstone National Park.

Acervularia (species undetermined).

1876. *Acervularia* —? —. White, Powell's Geol. Rep. Uinta Mts., p. 88.
 L. Aubrey Group: Split Mountain Canyon, Green River, Utah.

(ACLIS Leven, 1846.)

Aclis minuta Stevens. See *Aclisina minuta*.

Aclis robusta Stevens. See *Aclisina robusta*.

Aclis stervensoni White. See *Aclisina stervensana*.

Aclis swallowiana Meek. See *Aclisina swallowana*.

ACLISINA De Koninck, 1881.**Aclisina bellilineata** Miller.

1891. *Aclisina bellilineata*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 85, pl. 14, fig. 10.
 Chouteau L. S.: Sedalia, Missouri.
1892. *Aclisina bellilineata*. Miller, 17th Rep. Geol. Surv. Ind., p. 695, pl. 14, fig. 10.
 Chouteau L. S.: Sedalia, Missouri.
1894. *Aclisina?* *bellilineata*. Keyes, Mo. Geol. Surv., vol. 5, p. 202.
 Kinderhook L. S.: Sedalia, Missouri.

Aclisina minuta Stevens.

1858. *Aclis minuta*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 259.
 Coal Measures: Danville, Illinois.
1858. *Murchisonia minima*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 203.
 Middle Coal Measures: Lexington, Missouri.
1888. *Aclisina minuta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 240.
 Lower Coal Measures: Des Moines, Iowa.

Aclisina minuta Stevens—Continued.

1891. *Aclisina minuta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 259.
Lower Coal Measures: Des Moines, Iowa.
1894. *Aclisina minuta*. Keyes, Mo. Geol. Surv., vol. 5, p. 202.
Upper Coal Measures: Lexington, Missouri.

Aclisina robusta Stevens.

1858. *Aclis robusta*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 259.
Coal Measures: Danville, Illinois.
1873. *Aclis robusta*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 596, pl. 29,
fig. 6.
Coal Measures: Danville, Illinois.
1888. *Aclisina robusta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 240.
Lower Coal Measures: Des Moines, Iowa.
1894. *Aclisina robusta*. Keyes, Mo. Geol. Surv., vol. 5, p. 202.
Upper Coal Measures: Kansas City, Missouri.

Aclisina stevensana Meek and Worthen.

1866. *Turritella* ? *Stevensana*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 382,
pl. 27, figs. 8-8a.
Upper Coal Measures: North Branch Saline Creek, Gallatin County,
Illinois.
1881. *Aclis* ? *stevensoni*. White, U. S. Geog. Surv. w. 100 Merid., vol. 3, Supp.
Appendix, p. xxxv, pl. 3, figs. 9a-b.
Carboniferous: Coyote Creek, New Mexico.
1894. *Aclisina stevensana*. Keyes, Mo. Geol. Surv., vol. 5, p. 202.
Upper Coal Measures: Kansas City, Missouri.

Aclisina swallowana Geinitz.

1866. *Turbonilla swallowiana*. Geinitz, Carb. und Dyas in Nebr., p. 5, Tab. 1,
fig. 19.
Nebraska City, Nebraska.
1872. *Aclis swallowiana*. Meek, U. S. Geol. Surv. Nebr., p. 229, pl. 11, figs. 7a-b.
Upper Coal Measures: Nebraska City, Nebraska.

ACROCRINUS Yandell, 1855.**Acrocrinus amphora** Wachsmuth and Springer.

1897. *Acrocrinus amphora*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 808,
pl. 80, figs. 4-9.
St. Louis Group: Near Huntsville, Alabama.

Acrocrinus shumardi Yandell.

1847. Yandell and Shumard, Cont. to Geol. of Ky., p. 25, pl., fig. 3.
Grayson, Kentucky.
1855. *Acrocrinus Shumardi*. Yandell, Am. Jour. Sci. (2), vol. 20, p. 136, fig.
Carboniferous L. S.: Grayson County, Kentucky.
1858. *Acrocrinus urnæformis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 690, pl. 25, figs.
9a-b.
Kaskaskia L. S.: Pope County, Illinois.
1897. *Acrocrinus Shumardi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 806,
pl. 80, figs. 1-3.
Kaskaskia Group: Grayson and Pulaski counties, Kentucky.

Acrocrinus urnæformis. See *Acrocrinus shumardi*.**Acrocrinus wortheni** Wachsmuth.

1882. *Acrocrinus wortheni*. Wachsmuth, Bull. No. 1, Ill. State Mus. Nat. Hist.,
p. 40.
Coal Measures: Peoria County, Illinois.

Acrocrinus wortheni Wachsmuth—Continued.

1883. *Acrocrinus Wortheni*. Wachsmuth, Geol. Surv. Ill., vol. 7, p. 343, pl. 30, fig. 13.

Coal Measures: Peoria County, Illinois.

1897. *Acrocrinus Wortheni*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 807, pl. 80, figs. 10a-b.

Coal Measures: Peoria County, Illinois.

(ACROCULIA Phillips, 1841.)

Acroculia ovalis Stevens. See *Capulus ovalis*.

Acroculia trigonalis Stevens. See *Capulus trigonalis*.

(ACTÆONINA D'Orbigny.)

Actæonina minuta Meek and Worthen. See *Bulimorpha minuta*.

ACTINOCERAS Bronn, 1837.

Actinoceras inops Dawson.

1868. *Actinoceras inops*. Dawson, Acad. Geol., p. 314, fig. 133a.

Carboniferous L. S.: East River, Pictou, Nova Scotia.

1888. *Actinoceras inops?* Foord, Cat. Foss. Ceph. in Brit. Mus., vol. 1, p. 193.

Carboniferous L. S.: Brookfield, Nova Scotia.

Actinoceras expansum Meek and Worthen. See *Orthoceras expansum*.

ACTINOCRINUS Miller, 1821.

Actinocrinus ægilops. See *Teleiocrinus umbrosus*.

Actinocrinus æqualis. See *Batocrinus æqualis*.

Actinocrinus æquibrachiatus. See *Lobocrinus æquibrachiatus*.

Actinocrinus æquibrachiatus var. *alatus*. See *Lobocrinus æquibrachiatus* var. *asteriscus*.

Actinocrinus albersi Miller and Gurley.

1895. *Actinocrinus albersi*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 46, pl. 2, figs. 21-23.

Chouteau L. S.: Sedalia, Missouri.

Actinocrinus althea. See *Teleiocrinus althea*.

Actinocrinus amplus. See *Periechocrinus whitei*.

Actinocrinus andrewsianus. See *Batocrinus andrewsianus*.

Actinocrinus angustatus Miller and Gurley.

1894. *Actinocrinus angustatus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 11.

Kpokuk L. S.: Green County, Illinois.

Actinocrinus araneolus. See *Steganocrinus araneolus*.

Actinocrinus arnoldi. See *Cactocrinus arnoldi*.

Actinocrinus arrosus Miller.

1892. *Blairoocrinus arrosus*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 41, pl. 7, figs. 1-5.

Chouteau L. S.: Sedalia, Missouri.

Actinocrinus arrosus Miller—Continued.

1892. *Blairocrinus bullatus*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 41, pl. 7, figs. 6-7.
 Chouteau L. S.: Sedalia, Missouri.
1894. *Blairocrinus arrosus*. Miller, 18th Rep. Geol. Surv. Ind., p. 295, pl. 7, figs. 1-5.
 Chouteau L. S.: Sedalia, Missouri.
1894. *Blairocrinus bullatus*. Miller, 18th Rept. Geol. Surv. Ind., p. 295, pl. 7, figs. 6-7.
 Chouteau L. S.: Sedalia, Missouri.
1894. *Actinocrinus arrosus*. Keyes, Mo. Geol. Surv., vol. 4, p. 186.
 Kinderhook Group: Sedalia, Missouri.
1897. *Actinocrinus arrosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 577, pl. 55, figs. 7, 8a-c.
 Chouteau L. S.: Sedalia, Missouri.

Actinocrinus arrosus Miller and Gurley.

1894. *Actinocrinus arrosus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 15, pl. 2, fig. 4.
 Burlington Group: Burlington, Iowa.

Actinocrinus asperrimus Meek and Worthen.

1869. *Strotocrinus? asperrimus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 160.
 Burlington L. S.: Quincy, Illinois.
1873. *Strotocrinus? asperrimus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 349, pl. 8, fig. 3.
 Burlington L. S.: Quincy, Illinois.
1897. *Actinocrinus asperrimus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 575, pl. 60, figs. 5-6.
 L. Burlington L. S.: Burlington, Iowa.

Actinocrinus asterius. See *Actinocrinus verrucosus*.

Actinocrinus asteriscus. See *Lobocrinus aequibrachiatus* var. *asteriscus*.

Actinocrinus bischoffi Miller and Gurley.

1896. *Actinocrinus bischoffi*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 8, pl. 3, figs. 1-2.
 Burlington Group: Burlington, Iowa.

Actinocrinus biturbinatus. See *Batocrinus biturbinatus*.

Actinocrinus blairi. See *Cactocrinus glans*.

Actinocrinus botruosus Miller and Gurley.

1895. *Actinocrinus botruosus*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 22, pl. 2, figs. 1-2.
 Keokuk Group: Tennessee.

Actinocrinus brevicornis. See *Megistocrinus evansii*.

Actinocrinus brevis. See *Agaricocrinus brevis*.

Actinocrinus brittsi. See *Physetocrinus ornatus*.

Actinocrinus brontes. See *Actinocrinus lowei*.

Actinocrinus calyculoides. See *Eretmocrinus calyculoides*.

Actinocrinus calyculus. See *Batocrinus calyculus*.

Actinocrinus calyculus var. *hardinensis*. See *Batocrinus calyculus*.

Actinocrinus carica. See *Macrocrinus carica*.

Actinocrinus caroli. See *Batocrinus caroli*.

Actinocrinus chloris. See *Actinocrinus tenuisculptus*.

Actinocrinus chouteauensis Miller.

1892. *Actinocrinus* (?) *chouteauensis*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 18, pl. 3, figs. 9-11.

Chouteau L. S.: Near Sedalia, Missouri.

1894. *Actinocrinus* (?) *chouteauensis*. Miller, 18th Rep. Geol. Surv. Ind., p. 272, pl. 3, figs. 9-11.

Chouteau L. S.: Near Sedalia, Missouri.

1894. *Dorycrinus chouteauensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 169.

Kinderhook L. S.: Sedalia, Missouri.

1897. (?) *Actinocrinus chouteauensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 570, pl. 46, figs. 11a-b.

Chouteau L. S.: Sedalia, Missouri.

Actinocrinus christyi. See *Eutrochocrinus christyi*.

Actinocrinus clarus. See *Cactocrinus clarus*.

Actinocrinus clavigerus. See *Batocrinus similis*.

Actinocrinus clio. See *Eretmocrinus clio*.

Actinocrinus clivosus. See *Teleiocrinus rudis*.

Actinocrinus clælia. See *Eretmocrinus clælia*.

Actinocrinus clypeatus. See *Batocrinus clypeatus*.

Actinocrinus cælatus. See *Cactocrinus cælatus*.

Actinocrinus concavus. See *Aorocrinus concavus*.

Actinocrinus concinnus. See *Steganocrinus concinnus*.

Actinocrinus copei. See *Physetocrinus copei*.

Actinocrinus corbulis. See *Eretmocrinus corbulis*.

Actinocrinus coreyi. See *Agaricocrinus coreyi*.

Actinocrinus corniculus. See *Agaricocrinus brevis*.

Actinocrinus cornigerus. See *Dorycrinus cornigerus*.

Actinocrinus coronatus. See *Eretmocrinus coronatus*.

Actinocrinus dalyanus. See *Cactocrinus proboscidiælis*.

Actinocrinus daphne Hall.

1864. *Actinocrinus daphne*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 52.

Waverly Group: Richfield, Ohio.

1875. *Actinocrinus Daphne*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 162, pl. 11, fig. 11.

Waverly Group: Richfield, Ohio.

1897. *Actinocrinus daphne*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 574, pl. 56, fig. 1.

Waverly Group: Richfield, Ohio.

Actinocrinus decornis. See *Dorycrinus cornigerus*.

Actinocrinus delicatus. See *Teleiocrinus umbrosus*.

Actinocrinus desideratus. See *Dorycrinus missouriensis*.

Actinocrinus discoideus. See *Batocrinus subæqualis*.

Actinocrinus divaricatus. See *Dorycrinus cornigerus*.

Actinocrinus divergens. See *Amphoracrinus divergens*.

Actinocrinus dodecadactylus. See *Dizygocrinus dodecadactylus*.

Actinocrinus doris. See *Batocrinus æqualis*.

Actinocrinus equibrachiatus var. *alatus*. See *Lobocrinus æquibrachiatus* var. *asteriscus*.

Actinocrinus eris. See *Aorocrinus helice*.

Actinocrinus erodus. See *Teleiocrinus rudis*.

***Actinocrinus erraticus* Miller and Gurley.**

1894. *Actinocrinus erraticus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 14, pl. 2, figs. 2-3.

Burlington Group: Drift at Danville, Illinois.

Actinocrinus eryx. See *Cactocrinus glans*.

Actinocrinus euconus. See *Batocrinus euconus*.

Actinocrinus evensii. See *Megistocrinus evensii*.

Actinocrinus excerptus. See *Cactocrinus proboscidalis*.

Actinocrinus fiscellus. See *Agaricocrinus fiscellus*.

Actinocrinus formosus. See *Batocrinus subæqualis*.

Actinocrinus fossatus. See *Cactocrinus fossatus*.

***Actinocrinus fosteri* McChesney.**

1860. *Actinocrinus fosteri*. McChesney, Desc. New Pal. Foss., p. 19.

Burlington L. S.: Burlington, Iowa.

1865. *Actinocrinus fosteri*. McChesney, Ill. New Spec. Foss., pl. 5, figs. 2a-b.

1868. *Actinocrinus fosteri*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 14, pl. 15, figs. 2a-b.

Burlington L. S.: Burlington, Iowa.

***Actinocrinus foveatus* Miller and Gurley.**

1895. *Actinocrinus foveatus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 49, pl. 2, figs. 25-26.

Burlington Group: Sedalia, Missouri.

Actinocrinus gemmiformis. See *Eretmocrinus gemmiformis*.

***Actinocrinus gibsoni* Miller and Gurley.**

1894. *Actinocrinus gibsoni*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 10, pl. 2, fig. 1.

Keokuk Group: Indian Creek, near Crawfordsville, Indiana.

Actinocrinus glans. See *Cactocrinus glans*.

Actinocrinus glyptus. See *Strotocrinus glyptus*.

Actinocrinus gouldi. See *Dorycrinus gouldi*.

***Actinocrinus gracilis* Wachsmuth and Springer.**

1897. *Actinocrinus gracilis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 572, pl. 56, fig. 11.

Lower Burlington L. S.: Burlington, Iowa.

***Actinocrinus grandis* Miller and Gurley.**

1890. *Actinocrinus grandis*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 346, pl. 5, fig. 1; pl. 6, fig. 1.

Keokuk Group: Washington County, Indiana.

***Actinocrinus griffithi* Wachsmuth and Springer.**

1897. *Actinocrinus Griffithi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 568, pl. 52, fig. 7.

Upper Burlington L. S.: Burlington and Pleasant Grove, Iowa.

Actinocrinus hageri. See *Lobocrinus hageri*.

Actinocrinus helice. See *Aorocrinus helice*.

Actinocrinus helice var. *eris*. See *Aorocrinus helice*.

***Actinocrinus hurdianus* McChesney.**

1860. *Actinocrinus hurdianus*. McChesney, Desc. New Pal. Foss., p. 24.

Burlington L. S.: Burlington, Iowa.

1865. *Actinocrinus hurdianus*. McChesney, Ill. New Spec. Foss., pl. 5, figs. 9a-b, pl. 11, fig. 1.

1868. *Actinocrinus Hurdianus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 17, pl. 5, figs. 9a-b.

Burlington L. S.: Burlington, Iowa.

Actinocrinus indianensis. See *Dizygocrinus indianensis*.

Actinocrinus inflatus. See *Amphorocrinus spinobrachiatus*.

Actinocrinus infrequens. See *Cactocrinus thalia*.

Actinocrinus inornatus. See *Batocrinus clypeatus*.

Actinocrinus insculptus. See *Teleocrinus rudis*.

***Actinocrinus jessiae* Miller and Gurley.**

1896. *Actinocrinus jessiae*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 30, pl. 2, figs. 15-16.

Burlington Group: Sedalia, Missouri.

***Actinocrinus jugosus* Hall.**

1860. *Actinocrinus jugosus*. Hall, Supp., vol. 1, pt. 2, Geol. Rep. Iowa, p. 49.

Keokuk L. S.: Warsaw, Illinois.

1894. *Actinocrinus jugosus*. Keyes, Mo. Geol. Surv., vol. 4, p. 190.

Keokuk L. S.: Keokuk, Iowa.

1897. *Actinocrinus jugosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 563, pl. 54, fig. 1.

Keokuk Group: Keokuk, Iowa; Missouri; Illinois.

Actinocrinus konincki. See *Macrocrinus konincki*.

Actinocrinus lagena. See *Cactocrinus proboscidiialis*.

Actinocrinus lagunculus. See *Macrocrinus lagunculus*.

Actinocrinus laura. See *Batocrinus laura*.

Actinocrinus lepidus. See *Batocrinus lepidus*.

Actinocrinus leucosia. See *Eretmocrinus leucosia*.

Actinocrinus limabrachiatus. See *Cactocrinus limabrachiatus*.

Actinocrinus liratus. See *Teleocrinus liratus*.

***Actinocrinus lobatus* Hall.**

1860. *Actinocrinus lobatus*. Hall, Supp., vol. 1, pt. 2, Geol. Rep. Iowa, p. 51.

Keokuk L. S.: Warsaw, Illinois.

1890. *Actinocrinus lobatus*. Worthen, Geol. Surv. Ill., vol. 8, p. 97, pl. 12, figs. 8-8a.

Keokuk L. S.: Green County, Illinois.

Actinocrinus lobatus Hall—Continued.

1894. *Actinocrinus lobatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 190.
Keokuk L. S.: Kahoka, Missouri; Keokuk, Iowa; Warsaw, Illinois.
1897. *Actinocrinus lobatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 557,
pl. 52, figs. 1a-b; pl. 54, fig. 3; pl. 55, figs. 1a-b.
Burlington and Keokuk transition bed: Pleasant Grove, Iowa; Nauvoo,
Illinois; Canton, Indiana.

Actinocrinus locellus. See *Cactocrinus reticulatus*.

Actinocrinus longirostris. See *Lobocrinus longirostris*.

Actinocrinus longus. See *Cactocrinus longus*.

Actinocrinus lowei Hall.

1858. *Actinocrinus lowei*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 611, pl. 15, figs. 5a-b.
Keokuk L. S.: Near Warsaw, Illinois.
1860. *Actinocrinus brontes*. Hall, Supp., vol. 1, pt. 2, Geol. Rep. Iowa, p. 47.
Keokuk L. S.: Nauvoo, Illinois.
1894. *Actinocrinus lowei*. Keyes, Mo. Geol. Surv., vol. 4, p. 189.
Keokuk L. S.: Kahoka, Missouri; Keokuk, Iowa.
1897. *Actinocrinus Lowei*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 562,
pl. 54, fig. 2.
Keokuk Group: Keokuk, Iowa; Missouri; Illinois.

Actinocrinus lucina. See *Cactocrinus lucina*.

Actinocrinus magnificus Wachsmuth and Springer.

1897. *Actinocrinus magnificus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 567, pl. 53, fig. 2.
Keokuk Group: Indian Creek, Montgomery County, Indiana.

Actinocrinus matuta. See *Eretmocrinus matuta*.

Actinocrinus matuta var. *attenuata*. See *Eretmocrinus attenuatus*.

Actinocrinus minor. See *Megistocrinus evansii*.

Actinocrinus mississippiensis var. *spiniger*. See *Dorycrinus mississippiensis*.

Actinocrinus missouriensis. See *Dorycrinus missouriensis*.

Actinocrinus monticuliferus Miller and Gurley.

1894. *Actinocrinus monticuliferus*. Miller and Gurley, Bull. No. 5, Ill. State Mus.
Nat. Hist., p. 46, pl. 4, fig. 1.
Keokuk Group: Tennessee.

Actinocrinus multibrachiatus. See *Cactocrinus multibrachiatus*.

Actinocrinus multibrachiatus var. *echinatus*. See *Cactocrinus multibrachiatus*.

Actinocrinus multiradiatus Shumard.

- *1857. *Actinocrinus multiradiatus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1,
p. 75, pl. 1, fig. 5.
1858. *Actinocrinus multiradiatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 579, pl. 10, fig. 9.
Burlington L. S.: Burlington, Iowa.
1894. *Actinocrinus multiradiatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 188.
Upper Burlington L. S.: Ash Grove, Missouri; Quincy, Illinois; Burlington,
Iowa.
1897. *Actinocrinus multiradiatus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 555, pl. 52, figs. 3, 4a-b, 5, 6.
Upper Burlington L. S.: Burlington, Iowa; Quincy, Illinois; Hannibal,
Missouri.

***Actinocrinus multiramosus* Wachsmuth and Springer.**

1897. *Actinocrinus multiramosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 564, pl. 53, fig. 1; pl. 55, fig. 3.

Keokuk Group: Indian Creek, Montgomery County, Indiana; Canton, Indiana.

Actinocrinus mundulus. See *Batocrinus mundulus*.

Actinocrinus nashvillae. See *Lobocrinus nashvillae*.

Actinocrinus nashvillae var. *subtractus*. See *Batocrinus subtractus*.

Actinocrinus nodobrachiatus. See *Cactocrinus nodobrachiatus*.

Actinocrinus nodosus. See *Cactocrinus thalia*.

Actinocrinus obesus. See *Cactocrinus obesus*.

Actinocrinus oblatum. See *Dizygocrinus rotundus*.

Actinocrinus olliculus. See *Periechocrinus whitei*.

Actinocrinus opusculus. See *Cactocrinus opusculus*.

Actinocrinus ornatissimus. See *Cactocrinus ornatissimus*.

Actinocrinus ornatus. See *Physetocrinus ornatus*.

Actinocrinus ovatus. See *Cactocrinus reticulatus* var. *ovatus*.

***Actinocrinus pallubrum* Miller and Gurley.**

1896. *Actinocrinus pallubrum*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 26, pl. 1, figs. 25-27.

Burlington Group: Sedalia, Missouri.

Actinocrinus papillatus. See *Batocrinus clypeatus*.

Actinocrinus parvus. See *Aorocrinus parvus*.

Actinocrinus pendens. See *Dorycrinus unicornis*.

***Actinocrinus penicillus* Meek and Worthen.**

1869. *Actinocrinites penicillus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 155.

Lower Burlington L. S.: Burlington, Iowa.

1873. *Actinocrinites penicillus*. Meek and Worthen, Geol. Surv., Ill., vol. 5, p. 342, pl. 8, fig. 2.

Lower Burlington L. S.: Burlington, Iowa.

Actinocrinus pentagonus. See *Steganoocrinus pentagonus*.

***Actinocrinus pernodosus* Hall.**

1858. *Actinocrinus pernodosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 608, pl. 15, figs. 3a-b.

Keokuk L. S.: Warsaw, Illinois.

1858. *Actinocrinus pernodosus* var. ? Hall, Geol. Iowa, vol. 1, pt. 2, p. 617, pl. 16, fig. 7.

Keokuk L. S.: Warsaw, Illinois.

1894. *Actinocrinus pernodosus*. Keyes, Mo. Geol. Surv., vol. 4, p. 190.

Keokuk L. S.: Wayland, Missouri.

1897. *Actinocrinus pernodosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 561, pl. 55, figs. 2a-b.

Keokuk Group: Keokuk, Iowa; Nauvoo, Hamilton, and Warsaw, Illinois.

Actinocrinus perumbrosus. See *Strotocrinus regalis*.

Actinocrinus pettisensis Miller and Gurley.

1896. *Actinocrinus pettisensis*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 6, pl. 1, figs. 3-4.

Burlington Group: Sedalia, Missouri.

Actinocrinus pistilliformis. See *Lobocrinus pyriformis*.

Actinocrinus pistillus. See *Batocrinus pistillus*.

Actinocrinus plagosus Miller and Gurley.

1894. *Actinocrinus plagosus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 16, pl. 2, figs. 5-6.

Burlington Group: Burlington, Iowa.

Actinocrinus planobasilis. See *Amphoracrinus divergens*.

Actinocrinus planodiscus. See *Eutrochocrinus planodiscus*.

Actinocrinus proboscidualis. See *Cactocrinus proboscidualis*.

Actinocrinus puteatus. See *Cactocrinus lucina*.

Actinocrinus pyramidatus. See *Agaracocrinus pyramidatus*.

Actinocrinus pyriformis. See *Lobocrinus pyriformis*.

Actinocrinus pyriformis var. *rudis*. See *Lobocrinus pyriformis*.

Actinocrinus quadrispinus. See *Amphoracrinus divergens*.

Actinocrinus quarternarius. See *Cactocrinus proboscidualis*.

Actinocrinus quarternarius var. *spiniferus*. See *Cactocrinus proboscidualis*.

Actinocrinus quinquelobus. See *Dorycrinus quinquelobus*.

Actinocrinus ramulosus. See *Eretmocrinus ramulosus*.

Actinocrinus regalis. See *Strotocrinus regalis*.

Actinocrinus remibrachiatus. See *Eretmocrinus remibrachiatus*.

Actinocrinus reticulatus. See *Cactocrinus reticulatus*.

Actinocrinus rotundus. See *Dizygocrinus rotundus*.

Actinocrinus rudis. See *Teleiocrinus rudis*.

Actinocrinus rusticus. See *Actinocrinus scitulus*.

Actinocrinus sampsoni Miller and Gurley.

1896. *Actinocrinus sampsoni*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 5, pl. 1, figs. 1-2.

Burlington Group: Sedalia, Missouri.

Actinocrinus scitulus Meek and Worthen.

1860. *Actinocrinus scitulus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 386. Burlington L. S.: Cedar Creek, Warren County, Illinois.

1861. *Actinocrinus Sillimani*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 134.

Burlington L. S.: Clear Creek, Warren County, Illinois.

1861. *Actinocrinus rusticus*. Hall, Desc. New Spec. Crin., p. 2.

1861. *Actinocrinus rusticus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 267. Burlington L. S.: Burlington, Iowa.

1862. *Actinocrinus wachsmuthi*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 15. Upper Burlington L. S.: Burlington, Iowa.

1866. *Actinocrinus scitulus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 202, pl. 15, figs. 7a-b.

Burlington L. S.: Burlington, Iowa.

Actinocrinus scitulus Meek and Worthen—Continued.

1893. *Actinocrinus rusticus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 10, pl. 1, fig. 13.

1894. *Actinocrinus scitulus*. Keyes, Mo. Geol. Surv., vol. 4, p. 188.
Upper Burlington L. S.: Ste. Genevieve, Missouri.

1897. *Actinocrinus scitulus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 559, pl. 55, figs. 5, 6a-b.
Upper Burlington L. S.: Burlington, Iowa.

Actinocrinus sculptus. See *Steganocrinus sculptus*.

Actinocrinus securis. See *Cactocrinus thetis*.

Actinocrinus sedaliensis Miller.

1892. *Actinocrinus sedaliensis*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 16, pl. 3, figs. 1-3.

Burlington Group: Sedalia, Missouri.

1894. *Actinocrinus sedaliensis*. Miller, 18th Rep. Geol. Surv. Ind., p. 270, pl. 3, figs. 1-3.

Burlington Group: Sedalia, Missouri.

Actinocrinus senarius. See *Physetocrinus ornatus*.

Actinocrinus senectus Miller and Gurley.

1897. *Actinocrinus senectus*. Miller and Gurley, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 36, pl. 2, figs. 23-25.

Chouteau L. S.: Sedalia, Missouri.

Actinocrinus sexarmatus. See *Cactocrinus sexarmatus*.

Actinocrinus sillimani. See *Actinocrinus scitulus*.

Actinocrinus similis. See *Batocrinus mundulus*.

Actinocrinus sinuosus. See *Batocrinus laura* var. *sinuosus*.

Actinocrinus sobrinus Miller and Gurley.

1896. *Actinocrinus sobrinus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 10, pl. 3, figs. 4-5.

Burlington Group: Burlington, Iowa.

Actinocrinus speciosus. See *Strotocrinus regalis*.

Actinocrinus spectabilis Miller and Gurley.

1896. *Actinocrinus spectabilis*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 9, pl. 3, fig. 3.

Burlington Group: Burlington, Iowa.

Actinocrinus spinobrachiatus. See *Amphorocrinus spinobrachiatus*.

Actinocrinus spinosulus. See *Aorocrinus spinosulus*.

Actinocrinus spinotentaculus. See *Cactocrinus cœlatus* var. *spinotentaculus*.

Actinocrinus steropes. See *Batocrinus steropes*.

Actinocrinus subaculeatus. See *Aorocrinus subaculeatus*.

Actinocrinus subæqualis. See *Batocrinus subæqualis*.

Actinocrinus subpulchellus Miller and Gurley.

1896. *Actinocrinus subpulchellus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 13, pl. 3, figs. 12-14.

Burlington Group: Burlington, Iowa.

Actinocrinus subrotundatus. See *Batocrinus subrotundatus*.

Actinocrinus subscitulus Miller and Gurley.

1896. *Actinocrinus subscitulus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 12, pl. 3, figs. 6-8.

Burlington Group: Burlington, Iowa.

Actinocrinus subturbinatus. See *Dorycrinus subturbinatus*.

Actinocrinus subumbrosus. See *Teleocrinus liratus*.

Actinocrinus subventricosus. See *Physetocrinus ventricosus*.

Actinocrinus superlatus. See *Megistocrinus evansii*.

Actinocrinus symmetricus. See *Aorocrinus parvus*.

Actinocrinus tenuidiscus. See *Periechocrinus tenuidiscus*.

Actinocrinus tenuiradiatus. See *Teleocrinus tenuiradiatus*.

Actinocrinus tenuisculptus McChesney.

1860. *Actinocrinus tenuisculptus*. McChesney, Desc. New Pal. Foss., p. 15.
Burlington L. S.: Columbia, Missouri.

1861. *Actinocrinus chloris*. Hall, Desc. New Spec. Crin., p. 3.
Burlington L. S.

1861. *Actinocrinus chloris*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 275.
Burlington L. S.: Burlington, Iowa.

1865. *Actinocrinus tenuisculptus*. McChesney, Ill. New Spec. Foss., pl. 5, figs. 1a-b.

1868. *Actinocrinus tenuisculptus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 11, pl. 5, figs. 1a-b.

Burlington L. S.: Columbia, Missouri.

1894. *Actinocrinus tenuisculptus*. Keyes, Mo. Geol. Surv., vol. 4, p. 187.
Lower Burlington L. S.: Columbia, Missouri.

1897. *Actinocrinus tenuisculptus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 571, pl. 55, figs. 4 a-b.

Lower Burlington L. S.: Burlington, Iowa; Sedalia, Missouri; Lake Valley, New Mexico.

Actinocrinus thalia. See *Cactocrinus thalia*.

Actinocrinus themis. See *Cactocrinus proboscidalis*.

Actinocrinus thetis. See *Cactocrinus thetis*.

Actinocrinus thoas. See *Actinocrinus reticulatus*.

Actinocrinus tholus. See *Cactocrinus glans*.

Actinocrinus tricornis. See *Dorycrinus unicornis*.

Actinocrinus trijugis Miller.

1891. *Blairocrinus trijugis*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 69, pl. 11, figs. 1-3.

Chouteau L. S.: Near Sedalia, Missouri.

1892. *Blairocrinus trijugis*. Miller, 17th Rep. Geol. Surv. Ind., p. 679, pl. 11, figs. 1-3.
Chouteau L. S.: Near Sedalia, Missouri.

1894. *Gennæocrinus trijugis*. Keyes, Mo. Geol. Surv., vol. 4, p. 174, pl. 23, figs. 3a-b.
Chouteau L. S.: Sedalia, Missouri.

1897. *Actinocrinus trijugis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 576, pl. 54, figs. 4a-b.

Chouteau L. S.: Near Sedalia, Missouri.

Actinocrinus trinodus. See *Dorycrinus parvus*.

Actinocrinus tuberculosus Wachsmuth and Springer.

1897. *Actinocrinus tuberculosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 573, pl. 52, figs. 8a-c.

Upper Burlington L. S.: Burlington and Pleasant Grove, Iowa.

Actinocrinus turbinatus. See *Batocrinus turbinatus*.

Actinocrinus turbinatus var. *elegans*. See *Batocrinus turbinatus*.

Actinocrinus umbrosus. See *Teleiocrinus umbrosus*.

Actinocrinus unicarinatus Hall.

1860. *Actinocrinus unicarinatus*. Hall, Supp., vol. 1, pt. 2, Geol. Rep. Ia., p. 48.

Keokuk L. S.: Nauvoo, Illinois.

Actinocrinus unicornus. See *Dorycrinus unicornis*.

Actinocrinus unispina. See *Dorycrinus unispina*.

Actinocrinus urnæformis. See *Macrocrinus koninecki*.

Actinocrinus validus. See *Steganocrinus concinnus*.

Actinocrinus ventricosus. See *Physetocrinus ventricosus*.

Actinocrinus ventricosus var. *cancellatus*. See *Physetocrinus ventricosus*.

Actinocrinus ventricosus var. *internodius*. See *Physetocrinus ventricosus*.

Actinocrinus ventricosus var. *reticulatus*. See *Physetocrinus ventricosus*.

Actinocrinus verneuillianus. See *Macrocrinus verneuillianus*.

Actinocrinus verrucosus Hall.

1858. *Actinocrinus verrucosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 578, pl. 10, figs. 7a-b.

Burlington L. S.: Burlington, Iowa.

1860. *Actinocrinus asterius*. McChesney, Desc. New Pal. Foss., p. 13.

Burlington L. S.: Monmouth, Illinois.

1865. *Actinocrinus asterius*. McChesney, Ill. New Spec. Foss., pl. 5, figs. 6a-b.

1868. *Actinocrinus asterias*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 9, pl. 5, figs. 6a-b.

Burlington L. S.: Monmouth, Illinois.

1894. *Actinocrinus verrucosus*. Keyes, Mo. Geol. Surv., vol. 4, p. 189, pl. 24, fig. 3.

Upper Burlington L. S.: Hannibal, Ash Grove, Ste. Genevieve, and Howard County, Missouri.

1897. *Actinocrinus verrucosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 558, pl. 52, figs. 2a-c.

Upper Burlington L. S.: Burlington, Iowa; Monmouth and Quincy, Illinois.

Actinocrinus viaticus White.

1874. *Actinocrinus viaticus*. White, Prelim. Rep. Inv. Foss., p. 16.

Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.

1877. *Actinocrinus viaticus*. White, U. S. Geog. Surv. w. 100 Merid., vol. 4, p. 82, pl. 5, fig. 1.

Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.

Actinocrinus viminalis. See *Amphoracrinus viminalis*.

Actinocrinus wachsmuthi. See *Batocrinus grandis* and *Actinocrinus scitulus*.

Actinocrinus whitei. See *Periechocrinus whitei*.

Actinocrinus yandelli. See *Lobocrinus yandelli*.

Actinocrinus (species undetermined).

1848. *Actinocrinites*. Christy, Letters on Geol., pl. 1, figs. 5-6.
Carboniferous Limestone: Oquawaka, Illinois.
1859. *Actinocrinus* sp. nobis. Lyon and Casseday, Am. Jour. Sci. (2), vol. 28, p. 240.
Subcarboniferous: Quarries near Louisville and Nashville Railroad, Clear Creek, Hardin County, Kentucky.

ACTINOTRYPA Ulrich, 1890.**Actinotrypa peculiaris Rominger.**

1866. *Fistulipora peculiaris*. Rominger, Proc. Acad. Nat. Sci. Phil., p. 123.
Keokuk L. S.: La Grange, Missouri.
1890. *Actinotrypa peculiaris*. Ulrich, Geol. Surv. Ill., vol. 8, p. 503, pl. 77, figs. 3, 3a-b.
Keokuk L. S.: Keokuk, Iowa; La Grange, Missouri; Warsaw and Nauvoo, Illinois.
1894. *Actinotrypa peculiaris*. Keyes, Mo. Geol. Surv., vol. 5, p. 18, pl. 34, fig. 6.
Keokuk L. S.: La Grange, Missouri; Keokuk, Iowa.

ADIPHLEBIA Scudder, 1885.**Adiphlebia lacoana Scudder.**

1885. *Adiphlebia Lacoana*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 345, pl. 32, fig. 6.
Carboniferous: Mazon Creek, Illinois.
1890. *Adiphlebia Lacoana*. Scudder, Foss. Insc. N. A., vol. 1, p. 309, pl. 18, fig. 6.
Carboniferous: Mazon Creek, Illinois.

(ÆSIOCRINUS Miller and Gurley, 1890.)

Æsiocrinus angulatus. See *Phialocrinus angulatus*.

Æsiocrinus basilicus. See *Phialocrinus basilicus*.

Æsiocrinus harii. See *Phialocrinus harii*.

Æsiocrinus lykinsi. See *Phialocrinus lykinsi*.

Æsiocrinus magnificus. See *Phialocrinus magnificus*.

ÆTHOPHLEBIA Scudder, 1885.**Æthophlebia singularis Scudder.**

1885. *Æthophlebia singularis*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 338, pl. 31, fig. 9.
Carboniferous: Mazon Creek, Illinois.
1890. *Æthophlebia singularis*. Scudder, Foss. Insc. N. A., vol. 1, p. 302, pl. 17, fig. 9.
Carboniferous: Mazon Creek, Illinois.

AGANASTER Miller and Gurley, 1890.**Aganaster gregarius Meek and Worthen.**

1869. *Protaster? gregarius*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 169.
Keokuk Group: Crawfordsville, Indiana.
1873. *Protaster? gregarius*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 509, pl. 16, fig. 5.
Keokuk Group: Crawfordsville, Indiana.
1890. *Aganaster gregarius*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 372, pl. 9, figs. 10-11.

Aganaster (species undetermined).

1890. *Aganaster?* sp. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 372, pl. 9, figs. 12-13.

AGARICOCRINUS Troost, 1850.**Agaricocrinus adamsensis Miller and Gurley.**

1896. *Agaricocrinus adamsensis*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 24, pl. 1, figs. 7-9.
Burlington Group: Adams County, Illinois.

Agaricocrinus americanus Roemer.

- *1855. *Amphoracrinus americanus*. Roemer, Lethaea. Geog., Ausg. 3, p. 250, pl. 41, figs. 15a-b.
1881. *Agaricocrinus americanus*. Wachsmuth and Springer, Rev. Palaeoer., pt. 3, p. 111.
1890. *Agaricocrinus americanus*. Gordon, Am. Geol., vol. 5, p. 261, figs. 2-5.
Keokuk Group.
1890. *Agaricocrinus americanus*. Gordon, Proc. Iowa Acad. Sci., vol. 1, pt. 1, p. 101.
Keokuk L. S.
1891. *Agaricocrinus dissimilis*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 55, pl. 8, fig. 11.
Keokuk Group: Allen County, Kentucky.
1892. *Agaricocrinus dissimilis*. Miller, 17th Rep. Geol. Surv. Ind., p. 665, pl. 8, fig. 11.
Keokuk Group: Allen County, Kentucky.
1894. *Agaricocrinus americanus*. Keyes, Mo. Geol. Surv., vol. 4, p. 168, pl. 22, figs. 8a-b.
Keokuk L. S.; Wayland, Missouri.
1897. *Agaricocrinus americanus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 488, pl. 42, figs. 1, 2a-b.
Keokuk Group: White's Creek, near Nashville, Tennessee; Pilot Knob, near Louisville, Kentucky.

Agaricocrinus americanus var. tuberosus Hall.

1858. *Agaricocrinus tuberosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 617, pl. 16, figs. 2a-c.
Keokuk L. S.: Keokuk, Iowa; Nauvoo and Warsaw, Illinois; White Creek Springs, Tennessee.
1897. *Agaricocrinus americanus* var. *tuberosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 489, pl. 40, fig. 6; pl. 42, fig. 4.
Keokuk Group: Keokuk, Iowa; Hamilton, Nauvoo and Niota, Illinois.

Agaricocrinus arcula Miller and Gurley.

1895. *Agaricocrinus arcula*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 30, pl. 3, figs. 7-8.
Keokuk Group: Tennessee.

Agaricocrinus bellatrema. See Agaricocrinus ornotrema.**Agaricocrinus bellatrema var. major. See Agaricocrinus ornotrema var. major.****Agaricocrinus blairi. See Agaricocrinus planoconvexus.****Agaricocrinus brevis Hall.**

1858. *Actinocrinus brevis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 567, pl. 10, figs. 3a-b.
Burlington L. S.: Burlington, Iowa.
1858. *Actinocrinus corniculatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 566, pl. 10, figs. 1a-c.
Burlington L. S.: Burlington, Iowa.

Agaricocrinus brevis Hall—Continued.

1860. *Actinocrinus brevis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, pl. 2, fig. 3.
 1860. *Actinocrinus corniculus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, pl. 2, fig. 2.
 1894. *Agaricocrinus brevis*. Keyes, Mo. Geol. Surv., vol. 4, p. 167.
 Lower Burlington L. S.: Louisiana and Hannibal, Missouri; Kinderhook, Illinois; Burlington, Iowa.
 1897. *Agaricocrinus brevis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 511, pl. 38, figs. 2a-e.
 Lower Burlington L. S.: Burlington, Iowa; Southern Missouri.

Agaricocrinus bullatus Hall.

1858. *Agaricocrinus bullatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 562, pl. 9, figs. 11a-b.
 Burlington L. S.: Burlington, Iowa.
 1860. *Agaricocrinus pentagonus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 57.
 Burlington L. S.: Burlington, Iowa.
 1893. *Agaricocrinus pentagonus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 25, pl. 2, figs. 17, 18.
 Burlington L. S.: Burlington, Iowa.
 1894. *Agaricocrinus pentagonus*. Keyes, Mo. Geol. Surv., vol. 4, p. 167, pl. 22, fig. 9.
 Upper Burlington L. S.: Ash Grove and Ste. Genevieve, Missouri.
 1897. *Agaricocrinus bullatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 493, pl. 41, figs. 2a-d.
 Upper Burlington L. S.: Burlington, Iowa.

Agaricocrinus chouteauensis Miller.

1892. *Agaricocrinus chouteauensis*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 43, pl. 7, figs. 11-13.
 Chouteau L. S.: Sedalia, Missouri.
 1894. *Agaricocrinus chouteauensis*. Miller, 18th Rep. Geol. Surv. Ind., p. 297, pl. 7, figs. 11-13.
 Chouteau L. S.: Sedalia, Missouri.

Agaricocrinus conicus Wachsmuth and Springer.

1897. *Agaricocrinus conicus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 501, pl. 39, figs. 7-8.
 Keokuk Group: Indian Creek, Montgomery County, Indiana.

Agaricocrinus convexus Hall.

1860. *Agaricocrinus pentagonus* var. *convexus*. Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 58.
 1872. *Agaricocrinus pentagonus* var. *convexus*. Hall, Photo. Plates of Crinoids, pl. 4, figs. 14-17.
 1897. *Agaricocrinus convexus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 508, pl. 38, figs. 1a-b.
 Upper Burlington L. S.: Burlington, Iowa.

Agaricocrinus coreyi Lyon and Casseday.

1860. *Actinocrinus Coreyi*. Lyon and Casseday, Am. Jour. Sci. (2), vol. 29, p. 76.
 Subcarboniferous L. S.: Hardin and Allen counties, Kentucky; Washington County, Indiana.
 1882. *Agaricocrinus springeri*. White, 11th Rep. Geol. Surv. Ind., p. 362, pl. 40, figs. 2-4.
 Keokuk or Burlington Group: Clinton, Vermilion County, Indiana, in "terrace drift."
 1897. *Agaricocrinus Coreyi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 510, pl. 39, figs. 1a-b.
 Keokuk Group: Hardin and Allen counties, Kentucky; Vermilion County, Indiana.

Agaricocrinus corrugatus. See *Agaricocrinus pyramidatus*.

Agaricocrinus crassus Wetherby.

1881. *Agaricocrinus crassus*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 178, pl. 5, figs. 1-1b.

Keokuk Group: Tennessee.

1897. *Agaricocrinus crassus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 498, pl. 39, figs. 2 a, b; pl. 40, fig. 4.

Keokuk Group: Keokuk, Iowa; Barren and Metcalfe counties, Kentucky; White's Creek, Tennessee; Indian Creek, Montgomery County, Indiana.

Agaricocrinus decornis. See *Agaricocrinus planoconvexus*.

Agaricocrinus dissimilis. See *Agaricocrinus americanus*.

Agaricocrinus elegans Wetherby.

1881. *Agaricocrinus elegans*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 179, pl. 5, figs. 4-4b.

Keokuk Group: Tennessee.

1897. *Agaricocrinus elegans*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 500, pl. 40, figs. 3a-b.

Keokuk Group: Keokuk, Iowa; Niota, Illinois.

Agaricocrinus eris. See *Aorocrinus helice*.

Agaricocrinus excavatus Hall.

1861. *Agaricocrinus excavatus*. Hall, Desc. New Spec. Crin., p. 3.

Burlington L. S.

1861. *Agaricocrinus (Amphoracrinus) excavatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 282.

Upper Burlington L. S.: Brush Creek and Flint River, Iowa.

1893. *Agaricocrinus excavatus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 26, pl. 2, figs. 14-16.

Upper Burlington L. S.: Brush Creek and Flint River, Iowa.

1897. *Agaricocrinus excavatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 491, pl. 39, figs. 3-5.

Upper Burlington L. S.: Burlington, Augusta, and Pleasant Grove, Iowa.

Agaricocrinus fascellus Hall.

1861. *Actinocrinus fascellus*. Hall, Desc. New Spec. Crin., p. 2.

Burlington L. S.

1861. *Actinocrinus fascellus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 272.

Burlington L. S.: Burlington, Iowa.

1897. *Agaricocrinus fascellus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 512, pl. 38, figs. 3a-c.

Lower Burlington L. S.: Burlington, Iowa, Southern Missouri.

Agaricocrinus geometricus. See *Agaricocrinus stellatus*.

Agaricocrinus germanus Miller.

1892. *Agaricocrinus germanus*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 42, pl. 7, figs. 8-10.

Chouteau L. S.: Sedalia, Missouri.

1894. *Agaricocrinus germanus*. Miller, 18th Rep. Geol. Surv. Ind., p. 296, pl. 7, figs. 8-10.

Chouteau L. S.: Sedalia, Missouri.

Agaricocrinus gorbyi. See *Agaricocrinus splendens*.

Agaricocrinus gracilis Meek and Worthen.

1861. *Agaricocrinus gracilis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 135.

Burlington L. S.: Burlington, Iowa.

Agaricocrinus gracilis Meek and Worthen—Continued.

1897. *Agaricocrinus gracilis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 513, pl. 41, figs. 3a-c.

Upper Burlington L. S.: Burlington, Iowa.

Agaricocrinus helice. See Aorocrinus helice.**Agaricocrinus hodgsoni Miller and Gurley.**

1896. *Agaricocrinus hodgsoni*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 23, pl. 1, figs. 17-20.

Burlington Group: Adams County, Illinois.

Agaricocrinus illinoisensis Miller and Gurley.

1896. *Agaricocrinus illinoisensis*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 25, pl. 1, figs. 21-23.

Burlington Group: Adams County, Illinois.

Agaricocrinus indianensis. See Agaricocrinus splendens.**Agaricocrinus inflatus Hall.**

1861. *Agaricocrinus inflatus*. Hall, Desc. New Spec. Crin., p. 4.

Burlington L. S.

1861. *Agaricocrinus (Amphocrinus) inflatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol., 7, p. 284.

Burlington L. S.: Burlington, Iowa.

1897. *Agaricocrinus inflatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 502, pl. 41, figs. 1a-d.

Upper Burlington L. S.: Burlington, Iowa.

Agaricocrinus iowensis Miller and Gurley.

1897. *Agaricocrinus iowensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 5, pl. 1, figs. 1-3.

Keokuk Group: Keokuk, Iowa.

Agaricocrinus keokukensis Miller and Gurley.

1897. *Agaricocrinus keokukensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 7, pl. 1, figs. 4-6.

Keokuk Group: Keokuk, Iowa.

Agaricocrinus macadamsi. See Agaricocrinus nodulosus var. macadamsi.**Agaricocrinus nodosus Meek and Worthen.**

1869. *Agaricocrinus nodosus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 167.

Upper Burlington L. S.: Burlington, Iowa.

1873. *Agaricocrinus nodosus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 397, pl. 10, fig. 7.

Burlington L. S.: Burlington, Iowa.

1897. *Agaricocrinus nodosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 493, pl. 43, fig. 9.

Upper Burlington L. S.: Pleasant Grove, Iowa.

Agaricocrinus nodulosus Worthen.

1890. *Agaricocrinus nodulosus*. Worthen, Geol. Surv. Ill., vol. 8, p. 94, pl. 13, figs. 1-1a.

Keokuk L. S.: Keokuk, Iowa.

1897. *Agaricocrinus nodulosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 497, pl. 40, fig. 2, pl. 43, figs. 7a-b.

Keokuk Group: Keokuk, Iowa; Jersey County, Illinois; Montgomery County, Indiana; White's Creek, Tennessee; Canton, Indiana.

Agaricocrinus nodulosus var. macadamai Worthen.

1890. *Agaricocrinus macadamai*. Worthen, Geol. Surv. Ill., vol. 8, p. 94, pl. 13, figs. 2-2a.

Keokuk L. S.: Jersey County, Illinois.

1897. *Agaricocrinus nodulosus* var. *macadamai*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 498, pl. 39, fig. 6.

Keokuk Group: Hamilton, Illinois; Keokuk, Iowa; Montgomery County, Indiana.

Agaricocrinus ornotrema Hall.

1861. *Agaricocrinus ornotrema*. Hall, Desc. New Spec. Crin., p. 3.

Burlington L. S.

1861. *Agaricocrinus* (*Amphoracrinus*) *bellatrema*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 281.

Burlington L. S.: Burlington, Iowa.

1893. *Agaricocrinus ornotrema*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 24, pl. 2, figs. 19-22.

Burlington L. S.

1897. *Agaricocrinus bellatrema*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 506, pl. 41, figs. 4a-d.

Upper Burlington L. S.: Burlington and Pleasant Grove, Iowa.

Agaricocrinus ornotrema var. major Wachsmuth and Springer.

1897. *Agaricocrinus bellatrema* var. *major*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 507, pl. 41, fig. 5.

Upper Burlington L. S.: Burlington and Pleasant Grove, Iowa.

Agaricocrinus pentagonus. See *Agaricocrinus bullatus*.**Agaricocrinus pentagonus var. convexus**. See *Agaricocrinus convexus*.**Agaricocrinus planoconvexus** Hall.

1861. *Agaricocrinus planoconvexus*. Hall, Desc. New Spec. Crin., p. 3.

Burlington L. S.

1861. *Agaricocrinus* (*Amphoracrinus*) *planoconvexus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 280.

Burlington L. S.: Burlington, Iowa.

1891. *Agaricocrinus decorus*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 117, pl. 3, fig. 10.

Lower Burlington L. S.: Louisiana, Missouri.

1892. *Agaricocrinus blairi*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 21, pl. 3, figs. 12-14.

Chouteau L. S.: Sedalia, Missouri.

1894. *Agaricocrinus blairi*. Miller, 18th Rep. Geol. Surv. Ind., p. 27, pl. 3, figs. 12-14.

Chouteau L. S.: Sedalia, Missouri.

1894. *Agaricocrinus planoconvexus*. Keyes, Mo. Geol. Surv., vol. 4, p. 167, pl. 22, figs. 7a, b.

Kinderhook L. S.: Sedalia, Missouri.

Lower Burlington L. S.: Hannibal, Missouri.

1897. *Agaricocrinus planoconvexus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 503, pl. 38, figs. 6a-c.

Lower Burlington L. S.: Burlington, Iowa.

Agaricocrinus profundus Miller and Gurley.

1895. *Agaricocrinus profundus*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 26, pl. 3, figs. 1-3.

Keokuk Group: Tennessee.

Agaricocrinus pyramidatus Hall.

1858. *Actinocrinus pyramidatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 565.
Burlington L. S.: Burlington, Iowa.
1861. *Agaricocrinus corrugatus*. Hall, Desc. New Spec. Crin., p. 4.
Burlington L. S.
1861. *Agaricocrinus (Amphorocrinus) corrugatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 283.
Burlington L. S.: Burlington, Iowa.
1893. *Agaricocrinus pyramidatus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 23, pl. 2, figs. 23-25.
Burlington L. S.: Burlington, Iowa.
1897. *Agaricocrinus pyramidatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 512, pl. 38, figs. 4a-c, 5a-c.
Lower Burlington L. S.: Burlington, Iowa; Southern Missouri.

Agaricocrinus sampsoni Miller.

1892. *Agaricocrinus sampsoni*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 20, pl. 3, fig. 8.
Chouteau L. S.: Near Chouteau Springs, Missouri.
1894. *Agaricocrinus sampsoni*. Miller, 18th Rep. Geol. Surv. Ind., p. 274, pl. 3, fig. 8.
Chouteau L. S.: Near Chouteau Springs, Missouri.
1897. *Agaricocrinus Sampsoni*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 505, pl. 46, fig. 5.
Chouteau L. S.: Near Chouteau Springs, Missouri.

Agaricocrinus splendens Miller and Gurley.

1890. *Agaricocrinus splendens*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 18, pl. 4, figs. 1, 2.
Keokuk Group: Crawfordville, Indiana.
1890. *Agaricocrinus splendens*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 340, pl. 4, figs. 1, 2.
Keokuk Group: Crawfordsville, Indiana.
1891. *Agaricocrinus indianensis*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 53, pl. 8, fig. 5.
Keokuk Group: Washington County, Indiana.
1891. *Agaricocrinus gorbyi*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 54, pl. 8, fig. 9.
Keokuk Group: Indian Creek, Montgomery County, Indiana.
1891. *Agaricocrinus splendens*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 55, pl. 8, fig. 10.
Keokuk Group: Crawfordsville, Ind.
1892. *Agaricocrinus indianensis*. Miller, 17th Rep. Geol. Surv. Ind., p. 663, pl. 8, fig. 5.
Keokuk Group: Washington County, Indiana.
1892. *Agaricocrinus gorbyi*. Miller, 17th Rep. Geol. Surv. Ind., p. 664, pl. 8, fig. 9.
Keokuk Group: Indian Creek, Montgomery County, Indiana.
1892. *Agaricocrinus splendens*. Miller, 17th Rep. Geol. Surv. Ind., p. 665, pl. 8, fig. 10.
Keokuk Group: Crawfordsville, Indiana.
1897. *Agaricocrinus splendens*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 495, pl. 40, figs. 1a-c.
Keokuk Group: Indian Creek, Montgomery County, Indiana.

Agaricocrinus springeri. See *Agaricocrinus coreyi*.

Agaricocrinus stellatus Hall.

1858. *Agaricocrinus stellatus*. Hall, Geol. Iowa., vol. 1, pt. 2, p. 564.
Burlington L. S.: Quincy, Illinois.
1860. *Agaricocrinus geometricus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 56.
Burlington L. S.: Quincy, Illinois.
1897. *Agaricocrinus stellatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 508, pl. 38, figs. 7a-c.
Upper Burlington L. S.: Burlington, Iowa; Illinois; Missouri.

Agaricocrinus tuberosus. See *Agaricocrinus americanus* var. *tuberosus*.

Agaricocrinus tugurium Miller and Gurley.

1895. *Agaricocrinus tugurium*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 28, pl. 3, figs. 4-6.
Keokuk Group: Boone County, Kentucky.

Agaricocrinus whitfieldi Hall.

1858. *Agaricocrinus whitfieldi*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 621.
Keokuk L. S.: Greene County, Illinois.
1860. *Agaricocrinus whitfieldi*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, pl. 3, fig. 5.
1873. *Agaricocrinus Whitfieldi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 499, pl. 12, figs. 1a, b, pl. 15, fig. 8.
Keokuk Group: Greene County, Illinois.
1897. *Agaricocrinus Whitfieldi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 496, pl. 42, fig. 3, pl. 43, figs. 8a, b.
Keokuk Group: Greene County, Illinois; Keokuk, Iowa.

Agaricocrinus wortheni Hall.

1858. *Agaricocrinus wortheni*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 619, pl. 16, fig. 1.
Keokuk L. S.: Keokuk, Iowa; Warsaw, Illinois.
1890. *Agaricocrinus wortheni*. Gordon, Am. Geol., vol. 5, p. 260, fig. 1.
Keokuk Group.
1894. *Agaricocrinus wortheni*. Keyes, Mo. Geol. Surv. vol. 4, p. 168.
Keokuk L. S.: Wayland, Missouri; Keokuk, Iowa.
1897. *Agaricocrinus wortheni*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 490, pl. 39, fig. 9, pl. 40, figs. 5a-d.
Keokuk Group: Keokuk, Iowa; Hamilton, Illinois.

AGASSIZOCRINUS Troost, 1850.**Agassizocrinus carbonarius Worthen.**

1873. *Agassizocrinus carbonarius*. Worthen, Geol. Surv. Ill., vol. 5, p. 566, pl. 24, fig. 4.
Upper Coal Measures: Shelby County, Illinois.

Agassizocrinus chesterensis Worthen.

1873. *Agassizocrinus Chesterensis*. Worthen, Geol. Surv. Ill., vol. 5, p. 558, pl. 21, fig. 9.
Chester L. S.: Chester, Illinois.

Agassizocrinus conicus Owen and Shumard.

1852. *Agassizocrinus conicus*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 93, pl. 11, fig. 6.
Subcarboniferous L. S.: Chester, Illinois.
1852. *Agassizocrinus conicus*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 597, Tab. 5B, fig. 6.
Subcarboniferous L. S.: Chester, Illinois.
1873. *Agassizocrinus conicus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 557, pl. 21, fig. 8.
Chester Group: Chester, Illinois.

Agassizocrinus constrictus Hall.

1858. *Agassizocrinus constrictus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 687, pl. 25, fig. 10.
Kaskaskia L. S.: Chester, Illinois.

Agassizocrinus dactyliformis Shumard.

1854. *Agassizocrinus dactyliformis*. Shumard, Marcy's Expl. Red River of Louis.,
p. 173, pl. 1, fig. 7.
Carboniferous: Washington County, Arkansas.
1873. *Agassizocrinus dactyliformis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, pl.
21, figs. 7a, b.
Chester Group.
1894. *Agassizocrinus dactyliformis*. Keyes, Mo. Geol. Surv., vol. 4, p. 221.
Kaskaskia L. S.: Chester, Illinois.

Agassizocrinus gibbosus Hall.

1858. *Agassizocrinus gibbosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 686, pl. 25, figs.
6-6b.
Kaskaskia L. S.: Chester, Illinois.
1873. *Agassizocrinus gibbosus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 558,
pl. 21, fig. 11.
Chester Group: Chester, Illinois.

Agassizocrinus globosus. See *Cromyocrinus globosus*.

Agassizocrinus hemisphericus. See *Cromyocrinus hemisphericus*.

Agassizocrinus laevis Roemer.

- *1855. *Astylocrinus laevis*. Roemer, Lethæa. Geog., Aug. 3, p. 229, pl. 4, fig. 13.

Agassizocrinus occidentalis Owen and Shumard.

1852. *Poteriocrinus occidentalis*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil.
(2), vol. 2, p. 92, pl. 11, figs. 5a, b.
Carboniferous L. S.: Chester, Illinois.
1852. *Poteriocrinus occidentalis*. Owen and Shumard, Geol. Rep. Wis., Iowa, and
Minn., p. 596, Tab. 5B, figs. 5a, b.
Carboniferous L. S.: Chester, Illinois.

Agassizocrinus ovalis Miller and Gurley.

1896. *Agassizocrinus ovalis*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat.
Hist., p. 36, pl. 2, figs. 13, 14.
Kaskaskia Group: Randolph County, Illinois.

Agassizocrinus papillatus. See *Cromyocrinus papillatus*.

Agassizocrinus pentagonus Worthen.

1873. *Agassizocrinus pentagonus*. Worthen, Geol. Surv. Ill., vol. 5, p. 556, pl. 21, fig.
10.
Chester Group: Chester, Illinois.

Agassizocrinus tumidus Owen and Shumard.

1852. *Poteriocrinus tumidus*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2),
vol. 2, p. 90, pl. 11, figs. 3a, b.
Carboniferous L. S.: Chester, Illinois.
1852. *Poteriocrinus tumidus*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn.,
p. 595, Tab. 5B, figs. 3a, b.
Carboniferous L. S.: Chester, Illinois.

AGELACRINUS Vanuxem, 1842.**Agelacrinus blairi Miller.**

1892. *Agelacrinus blairi*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 12,
pl. 2, fig. 9.
Keokuk Group: Boonville, Missouri.

Agelacrinus blairi Miller—Continued.

1894. *Agelacrinus blairi*. Miller, 18th Rep. Geol. Surv. Ind., p. 266, pl. 2, fig 9.
Keokuk Group: Boonville, Missouri.

Agelacrinus kaskaskiensis. See *Echinodiscus kaskaskiensis*.**Agelacrinus legrandensis** Miller and Gurley.

1894. *Agelacrinus legrandensis*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 15, pl. 3, figs. 13, 14.
Kinderhook Group: Legrand, Iowa.

Agelacrinus pulaskiensis Miller and Gurley.

1894. *Agelacrinus pulaskiensis*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 16, pl. 3, fig. 18.
Kaskaskia Group: Pulaaski County, Kentucky.

Agelacrinus squamosus Meek and Worthen.

1868. *Agelacrinites (Lepidodiscus) squamosus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 357.
Keokuk Group: Crawfordsville, Indiana.
1873. *Agelacrinites (Lepidodiscus) squamosus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 513, pl. 16, fig 1.
Keokuk Group: Crawfordsville, Indiana.

ALLAGEOCRINUS Etheridge and Carpenter, 1881.**Allageocrinus carpenteri** Wachsmuth.

1882. *Allageocrinus carpenteri*. Wachsmuth, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 40.
Chester or Kaskaskia L. S.: Monroe County, Illinois.
1883. *Allageocrinus Carpenteri*. Wachsmuth, Geol. Surv. Ill., vol. 7, p. 341, pl. 29 fig. 14.
Chester L. S.: Monroe County, Illinois.

Allageocrinus americanus Rowley.

1895. *Allageocrinus americanus*. Rowley, Am. Geol., vol. 16, p. 219, figs. 3-10.
Louisiana L. S.: Louisiana, Missouri.

ALLOPROSALLOCRINUS Lyon and Casseday, 1860.**Alloprosallocrinus celsus** Miller and Gurley.

1894. *Alloprosallocrinus celsus*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 47, pl. 4, figs. 9-11.
Warsaw Group: Tennessee.

Alloprosallocrinus conicus Lyon and Casseday.

1860. *Alloprosallocrinus conicus*. Lyon and Casseday, Proc. Am. Acad. Arts and Sci. Bost., vol. 5, p. 29.
Top of the Knobstone: Clear Creek, Hardin County, also near Scottville, Allen County, Kentucky.
1891. *Alloprosallocrinus gurleyi*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 58, pl. 10, figs. 1, 2.
Keokuk or Warsaw Group: Brown County, Kentucky.
1892. *Alloprosallocrinus gurleyi*. Miller, 17th Rep. Geol. Surv. Ind., p. 668, pl. 10, figs. 1, 2.
Keokuk or Warsaw Group: Brown County, Kentucky.
1897. *Alloprosallocrinus conicus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 407, pl. 42, figs. 14a-c.
Keokuk Group: Pilot Knob, near Louisville, Kentucky; White's Creek, near Nashville, Tennessee; New Ross, Montgomery County, Indiana.

***Alloprosalloocrinus depressus* Lyon and Casseday.**

1860. *Alloprosalloocrinus depressus*. Lyon and Casseday, Proc. Am. Acad. Arts and Sci. Bost., vol. 5, p. 31.

Subcarboniferous: Clear Creek, Hardin County, Kentucky.

Alloprosalloocrinus gurleyi. See *Alloprosalloocrinus conicus*.

ALLORISMA King, 1844.

Allorisma altirostrata. See *Sedgwickia altirostrata*.

***Allorisma andrewi* Whitfield.**

1882. *Allorisma Andrewi*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 222.

Maxville L. S.: Newtonville, Ohio.

1888. *Allorisma Andrewi*. Herrick, Bull. Den. Univ., vol. 4, pl. 11, fig. 12.

Chester L. S.: Ohio.

1891. *Allorisma Andrewi*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 588, pl. 14, fig. 6.

Maxville, L. S.: Newtonville, Ohio.

1895. *Allorisma Andrewi*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 475, pl. 10, fig. 6.

Maxville L. S.: Newtonville, Ohio.

***Allorisma antiquum* Swallow.**

1863. *Allorisma antiqua*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 95.

Kaskaskia L. S.: Illinois and Missouri.

1894. *Allorisma antiqua*. Keyes, Mo. Geol. Surv., vol. 5, p. 127.

Keokuk, L. S.: Ste. Genevieve, Missouri.

***Allorisma arkansana* Weller.**

1897. *Allorisma arkansana*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 265, pl. 20, figs. 4, 5.

Batesville S. S.: Batesville, Arkansas.

***Allorisma capax* Newberry.**

1861. *Allorisma capax*. Newberry, Ives's Colo. Expl. Exped., p. 120, pl. 1, figs. 9-9a.

Upper Carboniferous or Permian L. S.: Agua Azul, near the base of Mount Taylor.

***Allorisma clavatum* McChesney.**

1860. *Allorisma clavata*. McChesney, Desc. New Pal. Foss., p. 56.

Kaskaskia L. S.: Chester, Illinois.

1865. *Allorisma (Sanguinaria) clavata*. McChesney, Ill. New Spec. Foss., pl. 6, figs. 9a-b.

1868. *Allorisma clavata*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 43, pl. 6, figs. 9a, b.

Chester L. S.: Chester, Illinois.

***Allorisma consanguinatum* Herrick.**

1888. *Allorisma consanguinatus*. Herrick, Bull. Den. Univ., vol. 4, p. 29, pl. 11, fig. 13.

Waverly Group: Ohio.

***Allorisma convexa* Herrick.**

1888. *Allorisma convexa*. Herrick, Bull. Den. Univ., vol. 3, p. 74, pl. 12, fig. 27.

Waverly Group: Licking County, Ohio.

1895. *Allorisma convexa*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 19.

Middle Waverly Group: Licking County, Ohio.

Allorisma cooperi Meek and Hayden. See *Chænomya cooperi*.

***Allorisma cooperi* Herrick.**

1888. *Allorisma cooperii*. Herrick, Bull. Den. Univ., vol. 3, p. 72, pl. 6, fig. 10.

Waverly Group: Licking County, Ohio.

Allorisma costatum Meek and Worthen.

1869. *Allorisma costata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 171.
Lower Coal Measures: Warren County, Illinois.
1873. *Allorisma costata*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 585, pl. 26,
fig. 15.
Coal Measures: Warren County, Illinois.
1875. *Allorisma costata*. Meek, Pal. Ohio, vol. 2, p. 344, pl. 19, figs. 6a, b.
Coal Measures: Greentown, Starke County, Ohio; Illinois; Iowa.
1887. *Allorisma costata*. Herrick, Bull. Den. Univ., vol. 2, p. 33, pl. 3, fig. 7; pl. 4,
fig. 28; p. 146, pl. 14, fig. 25.
Coal Measures: Flint Ridge, Ohio.
1894. *Allorisma costata*. Keyes, Mo. Geol. Surv., vol. 5, p. 123, pl. 46, fig. 12.
Upper Coal Measures: Kansas City, Missouri.

Allorisma cuneatum Swallow.

1858. *Allorisma cuneata*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 210.
Middle Coal Measures: Near Lexington, Missouri.

Allorisma curtum Swallow.

1858. *Allorisma* (?) *curta*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 194.
Permian: Near Council Grove, Kansas.

Allorisma cuyahoga Herrick.

1888. *Allorisma cuyahoga*. Herrick, Bull. Den. Univ., vol. 4, p. 28, pl. 10, fig. 34.
Waverly Group: Cuyahoga River, Ohio.
- 1893 1894. *Allorisma cuyahoga*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, fig. 17.
Near base of Cuyahoga Shale, lower falls of Cuyahoga River, Ohio.

Allorisma elegans. See *Allorisma geinitzi*.**Allorisma elongatum** Morton.

1836. *Pholadomya elongata*. Morton, Am. Jour. Sci. (1), vol. 29, p. 153, pl. 26,
fig. 37.
Coal Measures: Ohio Valley.

Allorisma elongatum Worthen. See *Allorisma worthenianum*.**Allorisma ensiforme**. See *Allorisma subcuneatum*.**Allorisma geinitzi** Meek.

1866. *Allorisma elegans*. Geinitz, Carb. und Dyas in Nebr., p. 13, tab. 1, fig. 31,
(not *A. elegans* King, 1844.)
Nebraska City, Nebraska.
1872. *Allorisma* (*Sedgwickia*) *Geinitzii*. Meek, U. S. Geol. Surv. Nebr., p. 219, pl. 10,
figs. 16a, b.
Upper Coal Measures: Nebraska City, Nebraska.
Upper Middle and Lower Coal Measures: Illinois.
1873. *Allorisma Geinitzii*. Meek, Geol. Surv. Ill., vol. 5, p. 586, pl. 26, fig. 23.
Coal Measures: Knox County, Illinois.
1887. *Allorisma Geinitzii*. Herrick, Bull. Den. Univ., vol. 2, p. 33, pl. 4, fig. 27.
Coal Measures: Flint Ridge, Ohio.

Allorisma gilberti White.

1879. *Allorisma* ? *gilberti*. White, Bull. U. S. Geol. and Geog. Surv. Terr., vol.
5, p. 217.
Carboniferous: Wild Band Pockets, northern Arizona, 15 miles south of
Pipe Spring.
1880. *Allorisma* ? *gilberti*. White, Cont. to Inv. Pal., No. 6, p. 137, pl. 33, figs.
9a, b.
Upper Carboniferous: Wild Band Pockets, Northern Arizona, 15 miles south
from Pipe Spring.

Allorisma granosum Shumard.

1858. *Leptodomus granosus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 207.
Upper Coal Measures: Valley of Verdigris River, Kansas.
1872. *Allorisma (Sedgwickia) granosa*. Meek, U. S. Geol. Surv. Nebr., p. 220, pl. 2,
fig. 8.
Upper Coal Measures: Rock Bluff, Nebraska; Verdigris River, Kansas.
1894. *Allorisma granosum*. Keyes, Mo. Geol. Surv., vol. 5, p. 128.
Upper Coal Measures: Kansas City, Missouri.

Allorisma hannibalense. See *Grammysia hanuibalensis*.**Allorisma hybridum Meek and Worthen.**

1865. *Chænomya ? hybrida*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 250.
Keokuk Group: Nauvoo, Illinois.
1868. *Allorisma (Chænomya ?) hybrida*. Meek and Worthen, Geol. Surv. Ill.,
vol. 3, p. 538, pl. 19, fig. 3a.
Keokuk Group: Nauvoo, Illinois.

Allorisma illinoisense Worthen.

1884. *Allorisma illinoisense*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 11.
Keokuk L. S.: Warsaw, Illinois.
1890. *Allorisma illinoensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 132, pl. 18, figs.
1, 1a.
Keokuk L. S.: Warsaw, Illinois.

Allorisma lanceolatum Swallow.

1858. *Allorisma lanceolata*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 194.
Permian: Valley of Cottonwood, Kansas.

Allorisma latum Swallow.

1858. *Allorisma lata*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 210.
Middle Coal Measures: Near Lexington, Missouri.

Allorisma leavenworthense. See *Chænomya leavenworthensis*.**Allorisma marionense White.**

1876. *Allorisma marionensis*. White, Proc. Acad. Nat. Sci. Phil., p. 31.
St. Louis L. S.: Marion and Mahaska counties, Iowa.
1880. *Allorisma marionensis*. White, Cont. to Inv. Pal., No. 8, p. 167, pl. 41, figs.
3a, b.
St. Louis Group: Marion and Mahaska counties, Iowa.
1894. *Allorisma marionensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 127.
St. Louis L. S.: St. Louis, Missouri.

Allorisma maxvillense Whitfield.

1882. *Allorisma Maxvillensis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 222.
Maxville L. S.: Newtonville, Ohio.
1891. *Allorisma Maxvillensis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 588, pl.
14, figs. 7, 8.
Maxville L. S.: Newtonville, Ohio.
1895. *Allorisma Mazvillensis*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 475, pl. 10,
figs. 7, 8.
Maxville L. S.: Newtonville, Ohio.

Allorisma minnehaha. See *Chænomya minnehaha*.**Allorisma nobilis.** See *Sanguinolites nobilis*.**Allorisma pleuropistha Meek.**

1871. *Allorisma (Sedgwickia?) pleuropistha*. Meek, Proc. Acad. Nat. Sci. Phil.,
p. 70.
Waverly Group: Rushville, Ohio.

Allorisma pleuropistha Meek—Continued.

1875. *Allorisma (Ceroomyopsis) pleuropistha*. Meek, Pal. Ohio, vol. 2, p. 309, pl. 13, figs. 4a-c.
Waverly Group: Rushville, Ohio.

Allorisma reflexum Meek.

1872. *Allorisma (Sedgwickia) reflexa*. Meek, U. S. Geol. Surv. Nebr., p. 217, pl. 10, fig. 15.
Upper Coal Measures: Nebraska City, Nebraska; Illinois.
Lower Coal Measures: Illinois.

Allorisma regularis. See *Allorisma subcuneata*.

Allorisma sinuatum McChesney.

1860. *Allorisma sinuata*. McChesney, Desc. New Pal. Foss., p. 56.
Kaskaskia L. S.: Kaskaskia and Chester, Illinois.
1865. *Allorisma (Sanguinaria) sinuata*. McChesney, Ill., New Spec. Foss., pl. 6, figs. 8a-b.
1868. *Allorisma sinuata*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 44, pl. 6, figs. 8a, b.
Chester L. S.: Kaskaskia and Chester, Illinois.
1873. *Allorisma sinuata?* Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 22, figs. 2a, b.
St. Louis Group.

Allorisma subcuneatum Meek and Hayden.

1852. *Allorisma regularis?* Owen, Geol. Rep. Wis., Iowa, and Minn., tab. 5, fig. 13.
Carboniferous: Missouri River at Wayne City.
1858. *Allorisma subcuneata*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 263.
Upper Coal Measures: Leavenworth, Kansas.
1860. *Allorisma ensiformis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 656.
Coal Measures: Clay City, Missouri.
1864. *Allorisma subcuneata*. Meek and Hayden, Pal. Up. Mo., p. 37, pl. 1, figs. 10a, b.
Coal Measures: Leavenworth City, Kansas.
1866. *Allorisma subcuneata*. Geinitz, Carb. und Dyas in Nebr., p. 14.
Plattsmouth and Wyoming, Nebraska: Kansas.
1872. *Allorisma subcuneata*. Meek, U. S. Geol. Surv. Nebr., p. 221, pl. 2, figs. 10a, b.
Upper Coal Measures: Rock Bluff, 2½ miles southwest of Nebraska City, Wyoming and Plattsmouth, Nebraska; Leavenworth and Atchison, Kansas.
Upper and Lower Coal Measures: Illinois.
1876. *Allorisma subcuneata*. White, Powell's Rep. Geol. Uinta Mts., p. 91.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1877. *Allorisma subcuneata* (var.). White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 155, pl. 12, figs. 7a, b.
Carboniferous: Near Agua Azul, New Mexico.
1881. *Allorisma subcuneata?* White, 2d Ann. Rep. Dept. Stat. and Geol. Ind., p. 518, pl. 8, figs. 1, 2.
Coal Measures: Edwardsport, Knox County, Indiana.
1884. *Allorisma subcuneata*. White, 13th Rep. Geol. Surv. Ind., p. 148, pl. 31, figs. 1-3.
Coal Measures: Indiana.
1886. *Allorisma subcuneata*. Heilprin, 2d Geol. Surv. Penn., Ann. Rep. for 1885, p. 457, p. 456, fig. 10a, p. 444, fig. 10.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Allorisma subcuneata*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 272, fig. 10, p. 276, fig. 10a.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.

Allorisma subcuneatum Meek and Hayden—Continued.

1887. *Allorisma subcuneata*. Herrick, Bull. Den. Univ., vol. 2, p. 34, pl. 4, figs. 1, 2.

Coal Measures: Flint Ridge, Ohio.

1894. *Allorisma subcuneatum*. Keyes, Mo. Geol. Surv., vol. 5, p. 129, pl. 47, figs. 5a-c.

Upper Coal Measures: Kansas City, Missouri.

Allorisma subelegans Meek.

1872. *Allorisma (Sedgwickia?) subelegans*. Meek, U. S. Geol. Surv. Nebr., p. 220, pl. 10, fig. 14.

Upper Coal Measures: Nebraska City, Nebraska.

Coal Measures: Illinois.

Allorisma terminale Hall.

1852. *Allorisma terminalis*. Hall, Stans. Exped. Gt. Salt Lake, p. 413, pl. 2, figs. 4a, b.

Carboniferous: Big Blue River.

Allorisma topekaensis. See *Sedgwickia topekaensis*.**Allorisma ventricosum** Meek.

1871. *Allorisma ventricosa*. Meek, Proc. Acad. Nat. Sci. Phil., p. 168.

Waverly Group: Rushville, Ohio.

1875. *Allorisma ventricosa*. Meek, Pal. Ohio, vol. 2, p. 312, pl. 16, figs. 4a, b.

Waverly Group: Rushville, Ohio.

1888. *Allorisma ventricosa*. Herrick, Bull. Den. Univ., vol. 3, p. 73, pl. 8, fig. 6, pl. 7, fig. 33.

Waverly Group: Licking County, Ohio.

Allorisma walkeri Weller.

1897. *Allorisma walkeri*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 265, pl. 19, figs. 6, 7.

Batesville S. S.: Batesville, Arkansas.

Allorisma winchelli Meek.

1871. *Allorisma winchelli*. Meek, Proc. Acad. Nat. Sci. Phil., p. 167.

Upper Waverly Group: Rushville and Newark, Ohio.

1875. *Allorisma winchelli*. Meek, Pal. Ohio, vol. 2, p. 311, pl. 16, figs. 3a-c.

Upper Waverly Group: Rushville and Newark, Ohio.

1888. *Allorisma winchelli*. Herrick, Bull. Den. Univ., vol. 3, p. 72, pl. 8, figs. 2-4.

Waverly Group: Licking County, Ohio.

Allorisma worthenianum Miller.

1884. *Allorisma elongata*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 12. (Not *A. elongatum* Morton, 1836.)

Keokuk L. S.: Warsaw, Illinois.

1889. *Allorisma worthenianum*. Miller, N. A. Geol. and Pal., p. 460.

1890. *Allorisma elongata*. Worthen, Geol. Surv. Ill., vol. 8, p. 133, pl. 19, fig. 10.

Keokuk L. S.: Warsaw, Illinois.

Allorisma (species undetermined).

1866. *Allorisma* (sp. undt.) Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 350, pl. 27, figs. 9-9a.

Upper Coal Measures: North Branch of Saline Creek, Gallatin County, Illinois.

1887. *Allorisma* sp. Herrick, Bull. Den. Univ., vol. 2, pl. 1, fig. 22.

Coal Measures: Flint Ridge, Ohio.

1887. *Allorisma?* Herrick, Bull. Den. Univ., vol. 2, pl. 5, fig. 1.

Coal Measures: Flint Ridge, Ohio.

AMBLYSIPHONELLA Steinman, 1882.**Amblysiphonella prosseri** Clarke.

1897. *Amblysiphonella prosseri*. Clarke, Am. Geol., vol. 20, p. 391, pl. 23, figs. 1-9.
Wabaunsee Formation: Nehawka and Weeping Water, Nebraska.

AMBOCELIA Hall, 1860.**Ambocelia gemmula**. See *Ambocelia planoconvexa*.**Ambocelia minuta** White.

1862. *Ambocelia (Spirifer?) minuta*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 26.
Chemung Group: Burlington, Iowa; Hamburg, Illinois; Hannibal, Missouri.
1894. *Ambocelia minuta*. Keyes, Mo. Geol. Surv., vol. 5, p. 90.
Kinderhook Group: Hannibal, Missouri.

Ambocelia planoconvexa Shumard.

1855. *Spirifer planoconvexa*. Shumard, Geol. Rep. Mo., p. 202.
Upper Coal Measures: On Missouri River, near mouth of Platte River.
1859. *Spirifer planoconvexa*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 28.
Upper Coal Measures: Manhattan, Juinata, and Leavenworth, Kansas.
1860. *Ambocelia gemmula*. McChesney, Desc. New Pal. Foss., p. 41.
Coal Measures: Peoria and Bureau counties, Illinois.
1864. *Spirifer (Martinia) planoconvexa*. Meek and Hayden, Pal. Up. Mo., p. 20, figs. a-c.
Coal Measures: Manhattan and Upper Mill Creek, Kansas.
1866. *Spirifer planoconvexa*. Geinitz, Carb. und Dyas in Nebr., p. 42, Tab. 3, figs. 10-18.
Nebraska City, Nebraska.
1868. *Martinia planoconvexa*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 34, pl. 1, figs. 3a-c.
Coal Measures: Peoria and Bureau counties, Illinois.
1872. *Spirifer [Martinia] planoconvexus*. Meek, U. S. Geol. Surv. Nebr., p. 184, pl. 4, figs. 4a, b, pl. 8, figs. 2a, b.
Upper Coal Measures: Nebraska City, Bennetts Mill, Wyoming. Cedar Bluff, Rock Bluff, Plattsmouth, Brownville, Otoe City, Rulo, Bellevue, and Omaha, Nebraska.
Coal Measures: Iowa; Missouri; Kansas; Pittsburg, Pennsylvania; West Virginia.
1874. *Spirifera (Martinia) planoconvexa*. Derby, Bull. Cornell Univ. (Sci.), vol. 1, No. 2, p. 19, pl. 8, figs. 12, 16, 18; pl. 9, fig. 7.
Coal Measures: Bomjardim and Itaituba, Brazil, and Pichis River, Peru.
1877. *Spirifer (Martinia) planoconvexus*. White, U. S. Geog. Surv. w. 100 Merid., vol. 4, p. 135, pl. 10, figs. 3a-c.
Carboniferous: Near Santa Fe, New Mexico; Elko Mountain, Nevada.
1884. *Spirifer (Martinia) planoconvexa*. White, 13th Rep. Geol. Surv. Ind., p. 134, pl. 32, figs. 23-24.
Coal Measures: Indiana. Occurs from Virginia to Utah and New Mexico.
1887. *Spirifera (Martinia) planoconvexa*. Herrick, Bull. Den. Univ., vol. 2, p. 46, pl. 1, fig. 12.
Coal Measures: Flint Ridge, Ohio.
1894. *Ambocelia planoconvexa*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 31, figs. 14-17.
Coal Measures: Illinois; Kansas.

Ambocœlia planoconvexa Shumard—Continued.

1894. *Spirifera planoconvexus*. Keyes, Mo. Geol. Surv., vol. 5, p. 85.
Upper Coal Measures: Kansas City, Missouri.
1895. *Ambocœlia planoconvexa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 39,
figs. 10-15.
Coal Measures: Springfield, Illinois; Manhattan, Kansas.

Ambocœlia umbonata Conrad.

1842. *Orthis umbonata*. Conrad, Jour. Acad. Nat. Sci. Phil. (1), vol. 8, p. 264.
1867. *Ambocœlia umbonata*. Hall, Pal. N. Y., vol. 4, p. 259, pl. 44, figs. 7-18.
Hamilton Group: New York.
1888. *Martinia umbonata*. Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 3.
Bedford Shale: Central College, Ohio.
1889. *Ambocœlia (umbonata)*. Herrick, Am. Geol., vol. 3, pl. 4, fig. 3.
1895. *Martinia umbonata*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 3.
Bedford Shale: Central College, Ohio.

(AMMONITES Lamark, 1801.)

- Ammonites bellicosus*. See *Goniatites bellicosus*.
- Ammonites colubrellus*. See *Goniatites colubrellus*.
- Ammonites hildrethi*. See *Goniatites hildrethi*.
- Ammonites parkeri*. See *Popanoceras parkeri*.

AMPHORACRINUS Austin, 1848.

Amphoracrinus americanus. See *Agaricocrinus americanus*.

Amphoracrinus blairi Miller and Gurley.

1896. *Amphoracrinus blairi*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat.
Hist., p. 26, pl. 1, figs. 45-50.
Burlington Group: Sedalia, Missouri.

Amphoracrinus divergens Hall.

1860. *Actinocrinus divergens*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 36.
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus planobasilis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 19.
Burlington L. S.: Burlington, Iowa.
1862. *Actinocrinus quadrispinus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 15.
Lower Burlington L. S.: Burlington, Iowa.
1868. *Amphoracrinus divergens*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 348.
1872. *Actinocrinus planobasilis*. Hall, Photo. Plates of Crinoids, pl. 4, figs. 10, 11.
1873. *Amphoracrinus divergens*. Meek and Worthen, Geol. Surv. Ill., vol. 5,
p. 388, pl. 6, fig. 6.
Burlington L. S.
1873. *Amphoracrinus divergens* var. *multiramosus*. Meek and Worthen, Geol.
Surv. Ill., vol. 5, p. 389, pl. 6, figs. 6-6c.
1893. *Amphoracrinus divergens*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1,
p. 21, pl. 2, figs. 12, 13.
Burlington L. S.: Burlington, Iowa.
1894. *Amphoracrinus divergens*. Keyes, Mo. Geol. Surv., vol. 4, p. 166, pl. 22,
fig. 4.
Lower Burlington L. S.: Louisiana, Missouri.
1897. *Amphoracrinus divergens*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 588, pl. 62, figs. 5, 6a-b, 7a-b, 8a-c, 9, 10.
Lower Burlington L. S.: Burlington, Iowa; Lake Valley, New Mexico.

Amphoracrinus divergens var. *multiramosus*. See *Amphoracrinus divergens*.

Amphoracrinus inflatus. See *Amphoracrinus spinobrachiatus*.

Amphoracrinus jerseyensis Worthen.

1890. *Amphoracrinus jerseyensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 86, pl. 14, figs 8-8a.

Kinderhook Group: Jersey County, Illinois.

Amphoracrinus jessiae Miller and Gurley.

1896. *Amphoracrinus jessiae*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 21, pl. 3, figs. 18, 19.

Chouteau L. S.: Sedalia, Missouri.

Amphoracrinus sampsoni Miller and Gurley.

1896. *Amphoracrinus sampsoni*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 27, pl. 1, figs. 28-29.

Chouteau L. S.: Sedalia, Missouri.

Amphoracrinus sodaliensis Miller and Gurley.

1895. *Amphoracrinus sodaliensis*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 54, pl. 5, figs. 34-37.

Chouteau L. S.: Sedalia, Missouri.

Amphoracrinus spinobrachiatus Hall.

1860. *Actinocrinus spinobrachiatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep., Iowa, p. 6. Burlington L. S.: Burlington, Iowa.

1860. *Actinocrinus inflatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 20. Burlington L. S.: Burlington, Iowa.

1873. *Amphoracrinus ? spinobrachiatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 389, pl. 6, fig. 5.

Burlington L. S.: Burlington, Iowa.

1893. *Amphoracrinus inflatus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 22, pl. 2, figs. 10, 11.

Burlington L. S.: Burlington, Iowa.

1897. *Amphoracrinus spinobrachiatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 591, pl. 62, figs. 1-4.

Lower Burlington L. S.: Burlington, Iowa; Lake Valley, New Mexico.

Amphoracrinus subturbinatus. See *Dorycrinus subturbinatus*.

Amphoracrinus viminalis Hall.

1864. *Actinocrinus viminalis*. Hall, 17th Rept. N. Y. State Cab. Nat. Hist., p. 54. Waverly Group: Richfield, Ohio.

1875. *Actinocrinus viminalis*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 165, pl. 11, figs. 12-14.

Waverly Group: Richfield, Ohio.

1897. *Amphoracrinus viminalis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 590, pl. 54, fig. 8.

Waverly Group: Richfield, Ohio.

AMPLEXUS Sowerby, 1814.

Amplexus bicostatus Miller. See *Amplexus fragilis*.

Amplexus blairi Miller.

1891. *Amplexus blairi*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 8, pl. 1, fig. 7.

Chouteau L. S.: Near Sedalia, Missouri.

Amplexus blairi Miller—Continued.

1892. *Amplexus blairi*. Miller, 17th Rep. Geol. Surv. Ind., p. 618, pl. 1, fig. 7.
Chouteau L. S.: Near Sedalia, Missouri.
1894. *Amplexus blairi*. Keyes, Mo. Geol. Surv., vol. 4, p. 108, pl. 13, fig. 1.
Burlington L. S.: Springfield, Sedalia, and Louisiana, Missouri; Burlington, Iowa.
- Kinderhook L. S.: Sedalia, Missouri.

Amplexus coralloides Sowerby. See *Amplexus fragilis* and *Amplexus* (species undetermined).**Amplexus corniculum** Miller.

1891. *Amplexus corniculum*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 9, pl. 1, figs. 21, 22.
Chouteau L. S.: Near Sedalia, Missouri.
1892. *Amplexus corniculum*. Miller, 17th Rep. Geol. Surv. Ind., p. 619, pl. 1, figs. 21, 22.
Chouteau L. S.: Near Sedalia, Missouri.

Amplexus fragilis White and St. John.

1851. *Amplexus coralloides*. Milne-Edwards and Haime, Monog. des Polyp. Foss., p. 342. (Not *A. coralloides* Sowerby.)
Carboniferous: Warsaw, Illinois.
1860. *Amplexus coralloides*. Milne-Edwards, Hist. Nat. des Corall., vol. 3, p. 348.
Carboniferous: North America.
1868. *Amplexus fragilis*. White and St. John, Trans. Chicago Acad. Sci., vol. 1, p. 116.
Keokuk L. S.: Near Keokuk, Iowa.
1891. *Amplexus bicostatus*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 8, pl. 1, fig. 10.
Burlington Group: Near Sedalia, Missouri.
1892. *Amplexus bicostatus*. Miller, 17th Rep. Geol. Surv. Ind., p. 618, pl. 1, fig. 10.
Burlington Group: Near Sedalia, Missouri.
1894. *Amplexus fragilis*. Keyes, Mo. Geol. Surv., vol. 4, p. 109.
Burlington L. S.: Sedalia and Louisiana, Missouri.
Keokuk L. S.: Boonville, Missouri; Keokuk, Iowa.

Amplexus geniculatus Worthen.

1890. *Amplexus geniculatus*. Worthen, Geol. Surv. Ill., vol. 8, p. 82, pl. 10, figs. 7, 7a.
Chester L. S.: Pope County, Illinois.

Amplexus rockfordensis Miller and Gurley.

1897. *Amplexus* (?) *rockfordensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 53, pl. 3, figs. 22, 23.
Kinderhook Group: Rockford, Indiana.

Amplexus yandelli Milne-Edwards and Haime.

1851. *Amplexus yandelli*. Milne-Edwards and Haime, Monog. des Polyp. Foss., p. 344, pl. 3, figs. 2, 2a.
Devonian: Falls of the Ohio.
1860. *Amplexus yandelli*. Milne-Edwards, Hist. Nat. des Corall., vol. 3, p. 349.
Devonian: Falls of the Ohio.
1876. *Amplexus yandelli*. Rominger, Geol. Surv. Mich., vol. 3, pt. 2, p. 155, pl. 54.
Devonian: Ann Arbor, Michigan (Drift); Falls of the Ohio.
1894. *Amplexus yandelli*? Keyes, Mo. Geol. Surv., vol. 4, p. 108, pl. 13, fig. 2.
Chouteau L. S.: Curryville, Missouri.

Amplexus zaphrentiformis White.

1876. *Amplexus zaphrentiformis*. White, Powell's Geol. Rep. Uinta Mts., p. 107.
Lower Aubrey Group: Split Mountain Canyon, and near Echo Park, Utah.

Amplexus zaphrentiformis White—Continued.

1880. *Amplexus zaphrentiformis*. White, Cont. to Pal., No. 6, p. 120, pl. 33, figs. 1a, d.
Lower Aubrey Group: Split Mountain Canyon, and near Echo Park,
Green River, where that stream traverses the Uinta mountain chain.

Amplexus (species undetermined).

1858. *Amplexus coralloides?* Marcou, Geol. N. A., p. 53.
Mountain L. S.: Pecos Village, New Mexico.

AMPULLARIA Lamark, 1801.**Ampullaria powelli** Walcott.

1883. *Ampullaria?* *Powellii*. Walcott, Science, vol. 2, p. 808, figs. 3, 3a.
Base of Carboniferous: Eureka District, Nevada.
1884. *Ampullaria?* *Powellii*. Walcott, Pal. Eureka Dist., p. 261, figs. 4, 5.
Lower Carboniferous: Eureka District, Nevada.

AMYNILYSPES Scudder, 1885.**Amynilyspes wortheni** Scudder.

1882. *Amynilyspes Wortheni*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 178,
pl. 13, figs. 1-4, 9.
Carboniferous: Mazon Creek, Illinois.
1890. *Amynilyspes Wortheni*. Scudder, Foss. Insc. N. A., vol. 1, p. 230, pl. 10,
figs. 1-4, 9.
Carboniferous: Mazon Creek, Illinois.

ANATINA Lamark, 1809.**Anatina leda** Hall.

1860. *Anatina leda*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 110.
Goniatite, L. S.: Rockford, Indiana.

(ANODONTA Lamark, 1799.)**(Anodonta abyssina** Morton.)

1836. *Anodonta?* *abyssina*. Morton, Am. Jour. Sci. (1), vol. 29, p. 149, pl. 1, figs.
22, 23.
Coal Measures: Ohio Valley.

(ANCILLA Lamark, 1799.)**Ancella crassicollis** Owen. See *Capulus equilateralis*.**ANISOPHYLLUM** Edwards and Haime, 1851.**Anisophyllum?** *iovaensis* Worthen.

1890. *Anisophyllum?* *iovaensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 80, pl. 9, fig. 7.
St. Louis L. S.: Pella, Iowa.

ANISOTRYPA Ulrich, 1883.**Anisotrypa fistulosa** Ulrich.

1890. *Anisotrypa fistulosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 448, pl. 72, figs. 6-6c.
St. Louis Group: Pella, Iowa.

Anisotrypa ramulosa Ulrich.

1890. *Anisotrypa ramulosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 449, pl. 72, figs. 7-7a.
St. Louis Group: Pella, Iowa.

Anisotrypa solida Ulrich.

1890. *Anisotrypa solida*. Ulrich, Geol. Surv. Ill., vol. 8, p. 449, pl. 72, figs. 9-9e.
Chester Group: Sloan's Valley, Pulaski County, Kentucky.
1894. *Anisotrypa solida*. Keyes, Mo. Geol. Surv., vol. 5, p. 16.
Kaskaskia L. S.: Ste. Genevieve County, Missouri; Chester, Illinois.

Anisotrypa symmetrica Ulrich.

1883. *Anisotrypa symmetrica*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 6, p. 276,
pl. 13, figs. 5-5c.
Kaskaskia Group: Grayson Springs and Tateville, Kentucky.

ANOMPHALUS Meek and Worthen, 1866.**Anomphalus meeki** Bradley. See *Dawsonella meeki*.**Anomphalus rotulus** Meek and Worthen.

1866. *Anomphalus rotulus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 268.
Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1873. *Anomphalus rotulus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 597,
pl. 29, fig. 10.
Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1874. *Anomphalus rotulus*. Meek, Am. Jour. Sci. (3), vol. 7, p. 583.
1888. *Anomphalus rotulus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 241.
Lower Coal Measures: Des Moines, Iowa.
1894. *Anomphalus rotulus*. Keyes, Mo. Geol. Surv., vol. 5, p. 154.
Lower Coal Measures: Clinton, Missouri.

ANTHRACERPES Meek and Worthen, 1865.**Anthracerpes typus** Meek and Worthen.

1865. *Anthracerpes typus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 51.
Coal Measures: Morris, Illinois.
1866. *Anthracerpes typus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 409, pl. 32,
figs. 1-1a.
Lower Coal Measures: Morris, Grundy County, Illinois.
1882. *Anthracerpes typus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 180.
Carboniferous: Mazon Creek, Illinois.
1890. *Anthracerpes typus*. Scudder, Foss. Insc. N. A., vol. 1, p. 232.
Carboniferous: Mazon Creek, Illinois.

ANTHRACOBLATTINA Scudder, 1879.**Anthracoblattina americana** Scudder.

1895. *Anthracoblattina americana*. Scudder, Bull. U. S. Geol. Surv., No. 124,
p. 129, pl. 11, fig. 7.
Lower Coal Measures: Near Clinton, Missouri.

Anthracoblattina virginienensis Scudder.

1895. *Anthracoblattina virginienensis*. Scudder, Bull. U. S. Geol. Surv., No. 124,
p. 130, pl. 11, fig. 8.
Lower Permian: Cassville, West Virginia.

ANTHRACOMARTUS Karsch, 1882.**Anthracomartus pustulatus** Scudder.

1884. *Anthracomartus pustulatus*. Scudder, Proc. Am. Acad. Arts and Sci., vol.
20, p. 18.
Carboniferous: Mazon Creek, Illinois.
1890. *Anthracomartus pustulatus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4,
p. 452, pl. 40, figs. 5, 8.
Carboniferous: Mazon Creek, Illinois.

Anthracomartus pustulatus Scudder—Continued.

1890. *Anthracomartus pustulatus*. Scudder, Foss. Insc. N. A., vol. 1, p. 428, pl. 32, figs. 5, 8.

Carboniferous: Mazon Creek, Illinois.

Anthracomartus trilobitus Scudder.

1884. *Anthracomartus trilobitus*. Scudder, Proc. Am. Acad. Arts and Sci., vol. 20, p. 17.

Carboniferous: Fayetteville, Arkansas.

1890. *Anthracomartus trilobitus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 451, pl. 39, figs. 7-10.

Carboniferous: Fayetteville, Arkansas.

1890. *Anthracomartus trilobitus*. Scudder, Foss. Incs. N. A., vol. 1, p. 427, pl. 31, figs. 7-10.

Carboniferous: Fayetteville, Arkansas.

Anthracomartus woodruffi Scudder.

1893. *Anthracomartus Woodruffi*. Scudder, Bull. U. S. Geol. Surv., No. 101, p. 9, pl. 1, fig. f.

Carboniferous: Pawtucket, Rhode Island.

ANTHRACOMYA Salter, 1861.**Anthracomya arenacea** Dawson.

1868. *Naiadites arenacea*. Dawson, Acad. Geol., p. 205, fig. 45.

Coal Measures: Joggins, Nova Scotia.

1894. *Anthracomya arenacea*. Hind, Quart. Jour. Geol. Soc. Lond., vol. 50, pl. 20, figs. 4-6.

Coal Measures: Joggins, Nova Scotia.

1894. *Anthracomya arenacea*. Dawson, Rev. Biv. Moll. Coal-Form. Nova Scotia, p. 12, fig. 10.

Coal Measures: Pictou and Sydney.

Anthracomya elongata Dawson.

- *1860. *Naiadites elongata*. Dawson, Supp. Acad. Geol., p. 43.

Coal Measures: Nova Scotia.

1863. *Anthracomya elongata*. Salter, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 79, fig. 1.

Coal Measures: Nova Scotia.

1868. *Naiadites (Anthracomya) elongata*. Dawson, Acad. Geol., p. 204, fig. 43.

Middle Coal Measures: Joggins and Sidney, Nova Scotia.

1883. *Naiadites elongata*. White, 3d Ann. Rep. U. S. Geol. Surv., p. 425, pl. 2, fig. 16.

1894. *Anthracomya elongata*. Hind, Quart. Jour. Geol. Soc. Lond., vol. 50, p. 441, pl. 20, figs. 7-11.

1894. *Anthracomya elongata*. Dawson, Rev. Biv. Moll. Coal-Form. Nova Scotia, p. 10, figs. 6-8.

Coal Measures: South Joggins, Pictou, Sydney, Glace Bay, Mahon, Riversdale, Swan Creek, and Parrsboro, Nova Scotia.

Anthracomya laevis Dawson.

- *1860. *Naiadites laevis*. Dawson, Supp. Acad. Geol.

Coal Measures: Nova Scotia.

1863. *Naiadites laevis*. Salter, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 79, fig. 2.

Coal Measures: Nova Scotia.

1868. *Naiadites (Anthracoptera) laevis*. Dawson, Acad. Geol., p. 204, fig. 44.

Middle Coal Measures: Joggins, Nova Scotia.

Anthracomya laevis Dawson—Continued.

1883. *Naiadites laevis*. White, 3d Ann. Rep. U. S. Geol. Surv., p. 425, pl. 2, fig. 17.
 1894. *Anthracomya laevis*. Hind, Quart. Jour. Geol. Soc. Lond., vol. 50, p. 442, pl. 20, fig. 12.
 1894. *Anthracomya laevis*. Dawson, Rev. Biv. Moll. Coal-Form. Nova Scotia, p. 11, fig. 9.
 Coal Measures: South Joggins, Nova Scotia.

Anthracomya obtenta Dawson.

1868. *Naiadites obtusa*. Dawson, Acad. Geol., p. 205 (name preoccupied).
 Lower Coal Measures: McLellan's Brook, Pictou.
 1894. *Anthracomya obtenta*. Dawson, Rev. Biv. Moll. Coal-Form. Nova Scotia, p. 13, figs. 12-13.
 Coal Measures: McLellan's Brook, Pictou, and Mabon, Cape Breton.

Anthracomya ovalis Dawson.

- *1860. *Naiadites ovalis*. Dawson, Supp. Acad. Geol.
 Coal Measures: Nova Scotia.
 1868. *Naiadites ovalis*. Dawson, Acad. Geol., p. 205.
 Coal Measures: Joggins, Nova Scotia.
 1894. *Anthracomya ovalis*. Hind, Quart. Jour. Geol. Soc. Lond., vol. 50, p. 442, pl. 20, fig. 13.
 1894. *Anthracomya ovalis*. Dawson, Rev. Biv. Moll. Coal-Form. Nova Scotia, p. 13, fig. 11.
 Lower Carboniferous and Coal Measures: South Joggins, Riversdale, and Parrsboro, Nova Scotia.

(ANTHRACOPTERA Salter, 1862.)

Anthracoptera carbonaria. See *Naiadites carbonaria*.

Anthracoptera fragilis. See *Naiadites fragilis*.

Anthracoptera polita. See *Naiadites polita*.

ANTHRACOPUPA Whitfield, 1881.

Anthracopupa ohioensis Whitfield.

1881. *Anthracopupa Ohioensis*. Whitfield, Am. Jour. Sci. (3), vol. 21, p. 126, figs. 1-4.
 Coal Measures: near Marietta, Ohio.
 1883. *Anthracopupa ohioensis*. White, 3d Ann. Rep. U. S. Geol. Surv., p. 456, pl. 2, figs. 5-8.
 1891. *Anthracopupa Ohioensis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 607, pl. 16, figs. 15-17.
 Coal Measures: Marietta, Ohio.
 1895. *Anthracopupa Ohioensis*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 491, pl. 12, figs. 15-17.
 Coal Measures: Near Marietta, Ohio.

(ANTHRACOSIA King, 1844.)

Anthracosia bradorica. See *Carbonicola bradorica*.

ANTHRACOTHREMMA Scudder, 1884.

Anthracothremma robusta Scudder.

1885. *Anthracothremma robusta*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 327, pl. 30, figs. 1, 5, 6.
 Carboniferous: Mazon Creek, Illinois.

Anthracothremma robusta Scudder—Continued.

1890. *Anthracothremma robusta*. Scudder, Foss. Insc. N. A., vol. 1, p. 291, pl. 16, figs. 1, 5, 6.
Carboniferous: Mazon Creek, Illinois.

ANTHRAPALÆMON Salter, 1861.**Anthrapalæmon gracilis** Meek and Worthen.

1865. *Anthrapalæmon gracilis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 50.
Coal Measures: Morris, Illinois.
1866. *Anthrapalæmon gracilis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 407, pl. 32, figs. 4-4c.
Lower Coal Measures: Morris, Grundy County, Illinois.
1868. *Anthrapalæmon gracilis*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 554, figs. A-B.
Coal Measures.
1884. *Anthrapalæmon gracilis*. White, 13th Rep. Geol. Surv. Ind., p. 180, pl. 38, figs. 8, 9.
Coal Measures: Grundy County, Illinois.
1885. *Anthrapalæmon gracilis*. Packard, Am. Nat., vol. 19, p. 880.
Carboniferous: Mazon Creek, Illinois.
1886. *Anthrapalæmon gracilis*. Packard, Mem. Nat. Acad. Sci., vol. 3, pt. 2, p. 135, pl. 4, figs. 1-6; pl. 7, figs. 4-6.
Carboniferous: Mazon Creek, Illinois.

Anthrapalæmon hillianus Dawson.

1877. *Anthrapalæmon (Palæocarabus) Hilliana*. Dawson, Geol. Mag. (2), vol. 4, p. 56, fig. 1.
Carboniferous: South Joggins, Nova Scotia.
1878. *Anthracopalæmon (Palæocarabus) Hillianus*. Dawson, Supp. to 2d Ed. Acad. Geol., p. 55, fig. 10.
Coal Measures: South Joggins, Nova Scotia.

AOROCRINUS Wachsmuth and Springer, 1897.**Aorocrinus canaliculatus** Meek and Worthen.

1869. *Dorycrinus canaliculatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 166.
Lower Burlington L. S.: Burlington, Iowa.
1873. *Dorycrinus canaliculatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 381, pl. 6, fig. 4.
Burlington L. S.: Burlington, Iowa.
1897. *Aorocrinus canaliculatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 475, pl. 45, figs. 6a, b.
Lower Burlington L. S.: Burlington, Iowa.

Aorocrinus concavus Meek and Worthen.

1861. *Actinocrinus (Amphorocrinus?) concavus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 132.
Burlington L. S.: Burlington, Iowa.
1865. *Actinocrinus (Sphaerocrinus) concavus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 154.
1866. *Calocrinus concavus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 215, pl. 15, figs. 10a-c.
Burlington L. S.: Burlington, Iowa.
1897. *Aorocrinus concavus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 482, pl. 42, figs. 13a-c.
Lower Burlington L. S.: Burlington, Iowa.

Aorocrinus elegans Miller.

1892. *Dorycrinus elegans*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 17, pl. 3, figs. 4, 5.
Burlington Group: Near Sedalia, Missouri.
1894. *Dorycrinus elegans*. Miller, 18th Rep. Geol. Surv. Ind., p. 271, pl. 3, figs. 4, 5.
Burlington Group: Near Sedalia, Missouri.
1894. *Dorycrinus elegans*. Keyes, Mo. Geol. Surv., vol. 4, p. 170.
Burlington L. S.: Sedalia, Missouri.
1897. *Aorocrinus elegans*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 480, pl. 34, figs. 7a, b.
Upper Burlington L. S.: Near Sedalia, Missouri.

Aorocrinus helice Hall.

1864. *Actinocrinus helice*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 53.
Waverly Group: Richfield, Ohio.
1864. *Actinocrinus helice* var. *eris*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 53.
Waverly Group: Richfield, Ohio.
1875. *Actinocrinus helice*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 162, pl. 11, figs. 5-8.
Waverly Group: Richfield, Ohio.
1875. *Actinocrinus Eris*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 164, pl. 11, figs. 9, 10.
Waverly Group: Richfield, Ohio.
1897. *Aorocrinus helice*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 481, pl. 45, figs. 2, 5.
Waverly S. S.: Richfield and Royalton, Ohio.

Aorocrinus immaturus Wachsmuth and Springer.

1890. *Dorycrinus immaturus*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 175, pl. 16, fig. 5; pl. 17, figs. 6, 17.
Kinderhook Group: Legrand, Iowa.
1897. *Aorocrinus immaturus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 471, pl. 45, figs. 4a, b.
Kinderhook Group: Legrand, Marshall County, Iowa.

Aorocrinus parvibasis Wachsmuth and Springer.

1890. *Dorycrinus parvibasis*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 177, pl. 17, figs. 7, 9, 9a.
Kinderhook Group: Legrand, Iowa.
1897. *Aorocrinus parvibasis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 473, pl. 45, figs. 3a, b.
Kinderhook Group: Legrand, Marshall County, Iowa.

Aorocrinus parvus Shumard.

1855. *Actinocrinus parvus*. Shumard, Geol. Rep. Mo., p. 193, pl. A, fig. 9.
St. Louis L. S.: St. Louis, Missouri.
1858. *Actinocrinus symmetricus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 574, pl. 10, figs. 8a-b.
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus symmetricus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, pl. 2, fig. 10.
1891. *Dorycrinus amoenus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 35, pl. 5, figs. 5, 6.
Burlington Group: Sedalia, Missouri.
1894. *Dorycrinus parvus*. Keyes, Mo. Geol. Surv., vol. 4, p. 171.
Upper Burlington L. S.: Palmyra, Sedalia, Ash Grove, and St. Louis County, Missouri.

Aorocrinus parvus Shumard—Continued.

1897. *Aorocrinus parvus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 477, pl. 45, fig. 11a, b.

Upper Burlington L. S.: Burlington, Iowa.

Aorocrinus radiatus Wachsmuth and Springer.

1890. *Dorycrinus radiatus*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 176, pl. 17, figs. 5, 5a.

Kinderhook Group: Legrand, Iowa.

1897. *Aorocrinus radiatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 472, pl. 45, fig. 1.

Kinderhook Group: Legrand, Marshall County, Iowa.

Aorocrinus spinosulus Hall.

1860. *Actinocrinus spinosulus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 52. Keokuk L. S.: Nauvoo, Illinois.

1875. *Dorycrinus Kelloggi*. Worthen, Geol. Surv. Ill., vol. 6, p. 513, pl. 29, fig. 8. Keokuk L. S.: Keokuk, Iowa.

1894. *Dorycrinus kelloggi*. Keyes, Mo. Geol. Surv., vol. 4, p. 173. Keokuk L. S.: Keokuk, Iowa.

1897. *Aorocrinus spinosulus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 478, pl. 43, fig. 4; pl. 44, fig. 8a, b.

Keokuk Group: Keokuk, Iowa; Nauvoo, Illinois.

Aorocrinus subaculeatus Hall.

1858. *Actinocrinus subaculeatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 570, pl. 10, figs. 2a, b.

Burlington L. S.: Burlington, Iowa.

1894. *Dorycrinus subaculeatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 170.

Lower Burlington L. S.: Louisiana, Missouri.

1897. *Aorocrinus subaculeatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 476, pl. 45, figs. 7a, b.

Lower Burlington L. S.: Burlington, Iowa.

APHELÆCERAS Hyatt, 1883.**Aphelæceras disciformis** Meek and Worthen.

1865. *Nautilus (Discites) disciformis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 261.

Keokuk Group: Niota, Illinois.

1873. *Nautilus (Discites) disciformis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 522, pl. 18, fig. 1.

Keokuk Group: Niota, Hancock County, Illinois.

1893. *Aphelæceras (Disc.) disciforme*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 413.

ARCA Linne, 1758.**Arca carbonaria**. See *Macrodon carbonarius*.**Arca cuspidata** Swallow.

1858. *Arca cuspidata*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 209.

Upper Coal Measures: Near Burlingame, Kansas.

Arca modesta Winchell.

1863. *Arca modesta*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 15.

Yellow S. S.: Burlington, Iowa.

Arca ornata Herrick.

1888. *Arca ornata*. Herrick, Bull. Den. Univ., vol. 3, p. 83, pl. 9, fig. 18.

Waverly Group: Licking County, Ohio.

***Arca punctifera* Dawson.**

1868. *Arca punctifera*. Dawson, Acad. Geol., p. 304.
Carboniferous L. S.: Windsor, Nova Scotia.

Arca striata*. See *Macrodon tenuistriata*.*ARCHÆOCARIS Meek, 1872.*****Archæocaris vermiformis* Meek.**

1872. *Archæocaris vermiformis*. Meek, Proc. Acad. Nat. Sci. Phil. for 1871, p. 335.
Base of Waverly Group: Danville, Kentucky.
1875. *Archæocaris vermiformis*. Meek, Pal. Ohio, vol. 2, p. 321, pl. 18, fig. 7.
Waverly Group: Danville, Kentucky.

ARCHÆOCIDARIS McCoy, 1844.***Archæocidaris aculeata* Shumard.**

1858. *Archæocidaris verneuilliana*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 180. (Not *A. verneuilliana* King.)
Middle Permian: West of Council Grove, Kansas.
1858. *Archæocidaris aculeatus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 223.
Upper Coal Measures: Verdigris River valley; Santa Fé road, near Rock Creek; 25 miles west of Council Grove, in valley of Cottonwood Creek, Kansas; Fort Belknap, Texas.
1894. *Archæocidaris aculeata*. Keyes, Mo. Geol. Surv., vol. 4, p. 130, pl. 15, fig. 3.
Upper Coal Measures: New Point, Jackson County, Missouri.
1895. *Archæocidaris aculeata*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 188, pl. 18, fig. 3.
Upper Coal Measures: New Point, Jackson County, Missouri.

***Archæocidaris agassizi* Hall.**

1858. *Archæocidaris agassizi*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 698, pl. 26, figs. 1a-d.
Burlington L. S.: Burlington, Iowa.
1894. *Archæocidaris agassizi*. Keyes, Mo. Geol. Surv., vol. 4, p. 127, pl. 15, fig. 5.
Burlington L. S.: Hannibal, Missouri; Burlington, Iowa.
1895. *Archæocidaris agassizi*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 185, pl. 18, fig. 5.
Burlington L. S.: Hannibal, Missouri; Burlington, Iowa.
1896. *Archæocidaris agassizi*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 213.

***Archæocidaris biangulata* Shumard.**

1858. *Archæocidaris biangulatus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 224.
Middle Coal Measures: Lexington, Missouri.
1894. *Archæocidaris biangulata*. Keyes, Mo. Geol. Surv., vol. 4, p. 130, pl. 15, figs. 1a-c.
Upper Coal Measures: Lexington and Kansas City, Missouri.
1895. *Archæocidaris biangulata*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 189, pl. 15, figs. 1a-c.
Upper Coal Measures: Lexington and Kansas City, Missouri.

***Archæocidaris cratis* White.**

1876. *Archæocidaris cratis*. White, Powell's Rep. Geol. Uinta Mts., p. 109.
Lower Aubrey Group: Confluence of Grand and Green Rivers, Utah.
1880. *Archæocidaris cratis*. White, Cont. to Inv. Pal., No. 6, p. 130, pl. 33, fig. 2a.
Middle Carboniferous: Confluence of Grand and Green rivers, Utah.
1895. *Archæocidaris cratis*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 188.
Coal Measures (Lower Aubrey): Utah.

***Archæocidaris dininni* White.**

1880. *Archæocidaris dininni*. White, Proc. U. S. Nat. Mus., vol. 2, p. 260, pl. 1, figs. 13-15.

Upper Coal Measures: Near Tecumseh, Nebraska; western Iowa.

1880. *Archæocidaris dininni*. White, Cont. to Inv. Pal., No. 6, p. 131, pl. 35, figs. 6a-c.

Upper Coal Measures: Tecumseh, Nebraska.

1894. *Archæocidaris dininni*. Keyes, Mo. Geol. Surv., vol. 4, p. 130, pl. 15, figs. 6a-c.

Upper Coal Measures: Kansas City, Missouri.

1895. *Archæocidaris dininni*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 190, pl. 18, figs. 6a-c.

Upper Coal Measures: Kansas City, Missouri; Tecumseh, Nebraska; Red Oak, Iowa.

***Archæocidaris edgarensis* Worthen and Miller.**

1883. *Archæocidaris edgarensis*. Worthen and Miller, Geol. Surv. Ill., vol. 7, p. 337, pl. 30, figs. 15a-c.

Upper Coal Measures: 1 mile east of Baldwinville, Edgar County, Illinois.

1891. *Archæocidaris edgarensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 245.

Lower Coal Measures: Des Moines, Iowa.

***Archæocidaris gracilis* Newberry.**

1861. *Archæocidaris gracilis*. Newberry, Ives' Colo. Expl. Exped., p. 117, pl. 1, figs. 4, 4a.

Upper Carboniferous L. S.: Banks of Colorado River.

Archæocidaris hallianus*. See *Eocidaris hallanus*.**Archæocidaris illinoiensis* Worthen and Miller.**

1883. *Archæocidaris illinoiensis*. Worthen and Miller, Geol. Surv. Ill., vol. 7, p. 338, pl. 31, figs. 1a-b.

St. Louis L. S. (black beds): Near Illinois Furnace, Hardin County, Illinois.

1895. *Archæocidaris illinoiensis*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 187.

St. Louis L. S.: Hardin County, Illinois.

***Archæocidaris keokuk* Hall.**

1858. *Archæocidaris keokuk*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 699, pl. 26, figs. 2a, b. Keokuk L. S.: Warsaw, Illinois.

1894. *Archæocidaris keokuk*. Keyes, Mo. Geol. Surv., vol. 4, p. 128.

Keokuk L. S.: Clark County, Missouri (?); Warsaw, Illinois.

1895. *Archæocidaris keokuk*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 186.

Keokuk L. S.: Clark County and Boonville, Missouri; Warsaw, Illinois.

***Archæocidaris legrandensis* Miller and Gurley.**

1890. *Archæocidaris legrandensis*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 373, pl. 10, fig. 15.

Kinderhook Group: Le Grand, Iowa.

1895. *Archæocidaris legrandensis*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 185.

Kinderhook L. S.: Le Grand, Marshall County, Iowa.

***Archæocidaris longispina* Newberry.**

1861. *Archæocidaris longispinus*. Newberry, Ives' Colo. Expl. Exped., pt. 3, p. 116, pl. 1, figs. 1, 1a.

Upper Carboniferous L. S.: Banks of Colorado River.

1895. *Archæocidaris longispinus*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 191.

Carboniferous: Junction of the two Colorado rivers, Arizona.

***Archæocidaris megastylus* Shumard.**

1858. *Archæocidaris megastylus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 225.

Archæocidaris megastylus Shumard—Continued.

1858. Upper Coal Measures: Headwaters of Verdigris River, and in valley of Cottonwood Creek, Kansas.
1894. *Archæocidaris megastylus*. Keyes, Mo. Geol. Surv., vol. 4, p. 129, pl. 15, figs. 2a, b.
Upper Coal Measures: Independence, Missouri.
1895. *Archæocidaris megastylus*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 189, pl. 18, figs. 2a, b.
Upper Coal Measures: Independence, Jackson County, Missouri.

Archæocidaris mucronata Meek and Worthen.

1860. *Archæocidaris mucronata*. Meek and Worthen, Proc. Acad. Nat. Sci., Phil., p. 395.
Chester L. S.: Liberty, Randolph County, Illinois.
1866. *Archæocidaris mucronata*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 295, pl. 23, figs. 3a-c.
Chester Group: Liberty, Randolph County, Illinois.
1895. *Archæocidaris mucronata*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 188.
Kaskaskia L. S.: Liberty and Chester, Illinois.

Archæocidaris newberryi Hambach.

1884. *Archæocidaris newberryi*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 551, pl. D, fig. 1.
St. Louis L. S.: St. Louis, Missouri.
1894. *Archæocidaris newberryi*. Keyes, Mo. Geol. Surv., vol. 4, p. 129.
St. Louis L. S.: St. Louis, Missouri.
1895. *Archæocidaris newberryi*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 187.
St. Louis L. S.: St. Louis, Missouri.

Archæocidaris norwoodi Hall.

1858. *Archæocidaris norwoodi*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 701, pl. 26, figs. 5a-e.
Kaskaskia L. S.: Chester, Illinois.
1894. *Archæocidaris norwoodi*. Keyes, Mo. Geol. Surv., vol. 4, p. 129.
Kaskaskia L. S.: Kaskaskia, Illinois; near St. Louis, Missouri.
1895. *Archæocidaris norwoodi*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 188.
Kaskaskia L. S.: Chester, Illinois.

Archæocidaris ornata Newberry.

1861. *Archæocidaris ornatus*. Newberry, Ives' Colo. Expl. Exped., p. 116, pl. 1, figs. 2, 3, 3a.
Upper Carboniferous L. S.: Banks of Colorado River.
1877. *Archæocidaris ornatus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 104, pl. 6, fig. 7.
Carboniferous: Ojo del Oso, near Fort Wingate, New Mexico.
1895. *Archæocidaris ornatus*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 191.
Carboniferous: Ojo del Oso, New Mexico.

Archæocidaris shumardana Hall.

1858. *Archæocidaris shumardana*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 699, pl. 26, figs. 3a-d.
Warsaw L. S.: Warsaw, Illinois.
1884. *Archæocidaris*, cf. *Shumardana*. Walcott, Pal. Eureka Dist., p. 212.
Lower Carboniferous L. S.: Eureka District, Nevada.
1894. *Archæocidaris shumardana*. Keyes, Mo. Geol. Surv., vol. 4, p. 128.
Keokuk L. S.: La Grange, Missouri.
1895. *Archæocidaris shumardana*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 186.
Keokuk L. S.: La Grange, Lewis County, Missouri; Warsaw, Illinois.

Archæocidaris spinoclavata Worthen and Miller.

1873. *Archæocidaris?* (sp. undet.). Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 24, figs. 13a-e.

Coal Measures.

1883. *Archæocidaris spino-clavatus*. Worthen and Miller, Geol. Surv. Ill., vol. 7, p. 337, pl. 30, figs. 14a-e.

Middle and Lower Coal Measures: St. Clair and Marshall counties, Illinois.

1895. *Archæocidaris spinoclavatus*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 190.

Upper Coal Measures: St. Clair and Marshall counties, Illinois.

Archæocidaris triplex White.

1881. *Archæocidaris triplex*. White, U. S. Geog. Surv., W. 100 Merid., vol. 3, Supp., Appendix, p. xxii, pl. 4, figs. 3a-c.

Carboniferous: New Mexico.

1895. *Archæocidaris triplex*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 191.

Upper Coal Measures: New Mexico.

Archæocidaris triserrata Meek.

1872. *Archæocidaris?* *triserrata*. Meek, U. S. Geol. Surv. Nebr., p. 151, pl. 1, figs. 6a-c.

Upper Coal Measures: Omaha, and 3 miles above mouth of Platte River, Nebraska.

Coal Measures: Vermilion County, Illinois.

1895. *Archæocidaris triserata*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 190.

Upper Coal Measures: Nebraska City, Nebraska; Kansas City, Missouri.

Archæocidaris tridifer White.

1874. *Archæocidaris tridifer*. White, Prelim. Rep. Inv. Foss., p. 17.

Carboniferous (Coal Measures): Camp Apache, Arizona.

1876. *Archæocidaris tridifer*. White, Powell's Rep. Geol. Uinta Mts., p. 89.

Lower Aubrey Group: Confluence of Grand and Green Rivers, Utah.

1877. *Archæocidaris tridifer*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 104, pl. 6, figs. 8a, b.

Carboniferous (Red Wall L. S.): Camp Apache, Arizona.

1895. *Archæocidaris tridifer*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 191.

Lower Carboniferous: "Camp Apache," Arizona.

Archæocidaris verneuiliiana. See *Archæocidaris aculeata*.**Archæocidaris wortheni** Hall.

1858. *Archæocidaris wortheni*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 700, pl. 26, figs. 4a-g.

St. Louis L. S.: Near St. Louis, Missouri.

1884. *Archæocidaris* cf. *wortheni*. Walcott, Pal. Eureka Dist., p. 212.

Lower Carboniferous L. S.: Eureka District, Nevada.

1894. *Archæocidaris wortheni*. Keyes, Mo. Geol. Surv., vol. 4, p. 128, pl. 16, figs. 3a, b.

St. Louis L. S.: St. Louis, Missouri.

1895. *Archæocidaris wortheni*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 187, pl. 20, figs. 3a, b.

St. Louis L. S.: St. Louis, Missouri.

1896. *Archæocidaris wortheni*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 214, pl. 8, figs. 43-46.

St. Louis Group: St. Louis, Missouri.

Archæocidaris (species undetermined).

1859. *Archæocidaris* —? Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 25.
Upper Coal Measures: Cottonwood Creek, Kansas.

1860. *Archæocidaris* —? Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 25.
Upper Coal Measures: Cottonwood Creek and Manhattan, Kansas.

1874. *Archæocidaris?* (sp. undet.) Meek, Am. Jour. Sci. (3), vol. 7, p. 486.

ARCHEGOGRYLLUS Scudder, 1868.

Archegogryllus priscus Scudder.

1868. *Archegogryllus priscus*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 11, p. 402.
Coal Measures: Tallmadge, Ohio.
1885. *Archegogryllus priscus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 323,
pl. 29, figs. 2, 3.
Carboniferous: Tallmadge, Ohio.
1890. *Archegogryllus priscus*. Scudder, Foss. Insc. N. A., vol. 1, p. 287, pl. 15,
figs. 2, 3.
Carboniferous: Tallmadge, Ohio.

ARCHIMEDES Le Sueur, 1842.

Archimedes archimedes Owen.

1852. *Rotepora Archimedes*. Owen, Geol. Rep. Wis., Iowa, and Minn., tab. 4,
figs. 1, 1a.
Near top of lower series of Carboniferous L. S.: Keokuk Rapids, Iowa.

Archimedes communis Ulrich.

1890. *Archimedes communis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 573, pl. 63, figs. 1-1d.
Chester Group: Most localities, especially at Sloan's Valley, Pulaski
County, Kentucky.

Archimedes compactus Ulrich.

1890. *Archimedes compactus*. Ulrich, Geol. Surv. Ill., vol. 8, p. 572, pl. 63, figs. 2-2e.
Chester Group: Sloan's Valley, Kentucky.

Archimedes distans Ulrich.

1890. *Archimedes distans*. Ulrich, Geol. Surv. Ill., vol. 8, p. 578, pl. 63, figs. 9-9b.
Chester Group: Chester, Illinois; Sloan's Valley, Kentucky.

Archimedes grandis Ulrich.

1890. *Archimedes grandis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 569, pl. 63, fig. 10.
Keokuk Group: Jersey County, Illinois.

Archimedes intermedius Ulrich.

1890. *Archimedes intermedius*. Ulrich, Geol. Surv. Ill., vol. 8, p. 574, pl. 63, fig. 2c.
Chester Group: Chester, Illinois; Sloan's Valley, Kentucky.

Archimedes invaginatus Ulrich.

1890. *Archimedes invaginatus*. Ulrich, Geol. Surv. Ill., vol. 8, p. 575, pl. 63, figs. 11a-
11c.
Chester Group: Chester, Illinois.

Archimedes latus Hall.

1857. *Fenestella (Archimedes) latus*. Hall, Proc. Am. Ass. Adv. Sci., vol. 10, p. 178.
Kaskaskia L. S.: Chester, Illinois.
1882. *Archimedes latus*. White, 11th Rep. Geol. Surv. Ind., p. 361, pl. 41, fig. 7.
Subcarboniferous: Indiana.
1883. *Helicopora archimediiformis*. Claypole, Quart. Jour. Geol. Soc. Lond.,
vol. 39, p. 34, pl. 4, figs. 3, 4.
Kaskaskia Group: Litchfield, Kentucky.
1890. *Archimedes latus*. Ulrich, Geol. Surv. Ill., vol. 8, p. 580, pl. 63, figs. 15, 15a.
Chester Group: Chester, Illinois; Litchfield, Kentucky.
1894. *Archimedes latus*. Keyes, Mo. Geol. Surv., vol. 5, p. 27.
Chester Group: Chester, Illinois.

Archimedes meekanus Hall.

1857. *Fenestella (Archimedes) Meekana*. Hall, Proc. Am. Ass. Adv. Sci., vol. 10,
p. 178.
Kaskaskia L. S.: Chester, Illinois.

Archimedes meekanus Hall—Continued.

1890. *Archimedes meekanus*. Ulrich, Geol. Surv. Ill., vol. 8, p. 578, pl. 63, fig. 4.
Chester Group: Chester, Illinois; Sloan's Valley and Grayson Springs, Kentucky.

Archimedes negligens Ulrich.

1890. *Archimedes negligens*. Ulrich, Geol. Surv. Ill., vol. 8, p. 569, pl. 63, figs. 7, 7a.
Keokuk Group: Bentonsport and Keokuk, Iowa.

Archimedes owenanus Hall.

1857. *Fenestella* (*Archimedes*) *Owenana*. Hall, Proc. Am. Ass. Adv. Sci., vol. 10, p. 178.
Keokuk L. S.: Keokuk, Iowa; Appanoose, Illinois.
1890. *Archimedes owenanus*. Ulrich, Geol. Surv. Ill., vol. 8, p. 570, pl. 63, figs. 6-6c.
Keokuk Group: Keokuk, Iowa; Appanoose, and 3 miles northeast of Quincy, Illinois.
1894. *Archimedes owenanus*. Keyes, Mo. Geol. Surv., vol. 5, p. 26, pl. 33, fig. 2.
Keokuk L. S.: St. Francoisville, Missouri.

Archimedes perminimus Ulrich.

1890. *Archimedes perminimus*. Ulrich, Geol. Surv. Ill., vol. 8, p. 572, pl. 63, figs. 11, 13.
Chester Group: Chester, Illinois.

Archimedes proutanus Ulrich.

1890. *Archimedes proutanus*. Ulrich, Geol. Surv. Ill., vol. 8, p. 576, pl. 63, figs. 3, 3d, 11, 11b.
Chester Group: Sloan's Valley, Kentucky; Chester, Illinois.

Archimedes reversus. See Archimedes wortheni.**Archimedes sublaxus Ulrich.**

1890. *Archimedes sublaxus*. Ulrich, Geol. Surv. Ill., vol. 8, p. 579, pl. 63, fig. 14.
Chester Group: Chester, Illinois.

Archimedes swallowanus Hall.

1857. *Fenestella* (*Archimedes*) *Swallowana*. Hall, Proc. Am. Ass. Adv. Sci., vol. 10, p. 178.
Kaskaskia Group: Kaskaskia and Chester, Illinois; Crittenden County, Kentucky.
1890. *Archimedes swallowanus*. Ulrich, Geol. Surv. Ill., vol. 8, p. 574, pl. 63, figs. 12-12d.
Chester Group: Chester, Illinois.
1894. *Archimedes swallowanus*. Keyes, Mo. Geol. Surv., vol. 5, p. 26.
Kaskaskia L. S.: Ste. Genevieve, Missouri.

Archimedes terebriformis Ulrich.

1890. *Archimedes terebriformis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 575, pl. 63, figs. 5-5c.
Chester Group: Chester, Illinois; Sloan's Valley, and Grayson Springs, Kentucky.

Archimedes wortheni Hall.

1857. *Fenestella* (*Archimedes*) *Wortheni*. Hall, Proc. Am. Ass. Adv. Sci., vol. 10, p. 178.
Warsaw L. S.: Warsaw, Illinois.
1858. *Archimedes wortheni*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 651, pl. 22, figs. 3, 4a, b, 5a, b.
Warsaw L. S.: Warsaw, Illinois.
1858. *Archimedes reversa*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 652, pl. 22, fig. 2.
Warsaw L. S.: Warsaw, Illinois.

Archimedes wortheni Hall—Continued.

1890. *Archimedes wortheni*. Ulrich, Geol. Surv. Ill., vol. 8, p. 571, pl. 63, figs. 8, 8a.
Warsaw Beds.
1894. *Archimedes wortheni*. Keyes, Mo. Geol. Surv., vol. 5, p. 26, pl. 33, fig. 1.
Keokuk L. S.: Wayland and Lagrange, Missouri.

Archimedes (species undetermined).

1842. *Archimedes*, cf. *Lesueur*. Owen, Amer. Jour. Sci. (1), vol. 43, p. 19, fig. 2.
St. Louis, Missouri.
1876. *Archimedes* — ? —. White, Powell's Rep. Geol. Uinta Mts., p. 89.
Lower Aubrey Group: Near Echo Park, Utah.
1879. *Archimedes* — ? White, Bull. U. S. Geol. and Geog. Surv. Terr., vol. 5,
p. 213.
Carboniferous: Mount Darby, Wyoming Range, Western Wyoming.

(ARCHIMEDIPORA D'Orbigny, 1850.)**(Archimediopora archimedes Shumard.)**

1854. *Archimediopora archimedes*. Shumard, Marcy's Expl. Red Riv. of Louis.,
p. 175, pl. 1, fig. 6.
Carboniferous: Washington County, Arkansas.
(This is some species of *Archimedes*.)

Archimediopora sp.

1876. *Archimediopora* — (†). Meek, Simp. Expl. Gt. Basin Utah, p. 348, pl. 1, fig. 11.
Camp Floyd.

ARCHIMYLACRIS Scudder, 1868.**Archimylacris acadicum Scudder.**

1868. *Archimylacris Acadicus*. Scudder, Dawson's Acad. Geol., p. 388, fig. 153.
Coal Measures: East River of Pictou, Nova Scotia.
1868. *Archimylacris Acadica*. Scudder, Am. Nat., vol. 1, p. 630, pl. 16, fig. 2.
Coal Measures: Nova Scotia.
1879. *Archimylacris acadicum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 84,
pl. 6, figs. 8, 14.
Middle Coal Formation: East River, Pictou, Nova Scotia.
1890. *Archimylacris acadicum*. Scudder, Foss. Insc. N. A., vol. 1, p. 104, pl. 6,
figs. 8, 14.
Middle Carboniferous: Pictou, Nova Scotia.
1895. *Archimylacris acadica*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 59.
Coal Measures: East River, Pictou, Nova Scotia.

Archimylacris parallelum Scudder.

1879. *Archimylacris parallelum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 85,
pl. 6, fig. 6.
Lower Coal Measures: Cannelton, Pennsylvania.
1890. *Archimylacris parallelum*. Scudder, Foss. Insc. N. A., vol. 1, p. 105, pl. 6,
fig. 6.
Lower Coal Measures: Cannelton, Pennsylvania.
1895. *Archimylacris parallela*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 58.
Millstone Grit: Campbell's Ledge, near Pittston, Pennsylvania.

Archimylacris paucinervis Scudder.

1890. *Archimylacris paucinervis*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4,
p. 411, pl. 31, fig. 5.
Carboniferous: Mazon Creek, Illinois.

Archimylacris paucinervis Scudder—Continued.

1890. *Archimylacris paucinervis*. Scudder, Foss. Insc. N. A., vol. 1, p. 387, pl. 23, fig. 5.

Carboniferous: Mazon Creek, Illinois.

1895. *Archimylacris paucinervis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 59.
Lower Coal Measures: Mazon Creek, Illinois.

ARCHITARBUS Scudder, 1868.**Architarbus elongatum** Scudder.

1890. *Architarbus elongatum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 449, pl. 40, fig. 4.

Carboniferous: Mazon Creek, Illinois.

1890. *Architarbus elongatum*. Scudder, Foss. Insc. N. A., vol. 1, p. 425, pl. 32, fig. 4.
Carboniferous: Mazon Creek, Illinois.

Architarbus rotundatum Scudder.

1868. *Architarbus rotundatus*. Scudder, Geol. Surv. Ill., vol. 3, p. 568, fig. 4.

Carboniferous: Mazon Creek, Grundy County, Illinois.

1890. *Architarbus rotundatum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 449.
Carboniferous: Mazon Creek, Illinois.

1890. *Architarbus rotundatum*. Scudder, Foss. Insc. N. A., vol. 1, p. 425.
Carboniferous: Mazon Creek, Illinois.

ARCHIULUS Scudder, 1868.**Archiulus dawsoni**. See *Xylobius dawsoni*.**Archiulus glomeratus** Scudder.

1890. *Archiulus? glomeratus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 436, pl. 37, figs. 2, 3.

Carboniferous: Mazon Creek, Illinois.

1890. *Archiulus? glomeratus*. Scudder, Foss. Insc. N. A., vol. 1, p. 412, pl. 29, figs. 2, 3.
Carboniferous: Mazon Creek, Illinois.

Archiulus xylobioides Scudder.

1868. *Archiulus xylobioides*. Scudder, Dawson's Acad. Geol., p. 496.

Carboniferous: Nova Scotia.

1873. *Archiulus xylobioides*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 2, p. 236.
Carboniferous: Nova Scotia.

1878. *Archiulus xylobioides*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 2, p. 561, figs. 5-7.

Carboniferous: Joggins, Nova Scotia.

1890. *Archiulus xylobioides*. Scudder, Foss. Insc. N. A., vol. 1, p. 26, 31, figs. 5-7.
Carboniferous: Joggins, Nova Scotia.

Archiulus (species undetermined).

- *1883. *Archiulus* — (2 sp.). Scudder, Trans. Phil. Soc. for 1882, p. 649.

Carboniferous: Joggins, Nova Scotia.

1890. *Archiulus* sp. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 437, pl. 37, fig. 1.
Carboniferous: Malden Mine, Kanawha Co., W. Va.

1890. *Archiulus* sp. Scudder, Foss. Insc. N. A., vol. 1, p. 413, pl. 29, fig. 1.
Carboniferous: Malden Mine, Kanawha Co., W. Va.

ARTHROLYCOSA Harger, 1874.**Arthrolycosa antiqua** Harger.

1874. *Arthrolycosa antiqua*. Harger, Am. Jour. Sci. (3), vol. 7, p. 219, fig.
Coal Measures: Mazon Creek, Grundy County, Illinois.

Arthrolycosa antiqua Harger—Continued.

1884. *Arthrolycosa antiqua*. Scudder, Proc. Am. Acad. Arts and Sci., vol. 20, p. 15.
Carboniferous: Mazon Creek, Illinois.
1889. *Arthrolycosa antiqua*. Beecher, Am. Jour. Sci. (3), vol. 38, p. 219, figs. 1-3.
Coal Measures: Illinois.

(ASTARTE Sowerby, 1818.)

Astarte mortonensis. See *Edmondia mortonensis*.

Astarte nebrascensis. See *Edmondia nebrascensis*.

ASTARTELLA Hall, 1858.

Astartella concentrica McChesney.

1860. *Edmondia concentrica*. McChesney, Desc. New Pal. Foss., p. 55.
Coal Measures: Carnahan's Coal Mine, Mercer County, Illinois; Big Creek, Indiana; Charbonier, Missouri.
1865. *Edmondia concentrica*. McChesney, Ill. New Spec. Foss., pl. 2, figs. 21a-b.
1868. *Astartella concentrica*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 43, pl. 2, figs. 21a, b.
Coal Measures: Mercer County, Illinois; Big Creek, Indiana; Charbonier, Missouri.
1894. *Astartella concentrica*. Keyes, Mo. Geol. Surv., vol. 5, p. 126.
Lower Coal Measures: Charbonier, Missouri.

Astartella gurleyi White.

1878. *Astartella Gurleyi*. White, Proc. Acad. Nat. Sci. Phil., p. 35.
Coal Measures: Danville, Illinois.
1880. *Astartella gurleyi*. White, Cont. to Inv. Pal., No. 8, p. 166, pl. 42, figs. 6a-b.
Coal Measures: Danville, Illinois.

Astartella newberryi Meek.

1875. *Astartella Newberryi*. Meek, Pal. Ohio, vol. 2, p. 340, pl. 19, fig. 3.
Coal Measures: Newark, Ohio.
1887. *Astartella Newberryi*. Herrick, Bull. Den. Univ., vol. 2, p. 39, pl. 4, fig. 33.
Coal Measures: Flint Ridge, Ohio.
1897. *Astartella newberryi*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 36.
Upper Coal Measures: Poteau Mountain, Indian Territory.
Lower Coal Measures: Conway County, Arkansas.

Astartella varica McChesney.

1860. *Astartella varica*. McChesney, Desc. New Pal. Foss., p. 55.
Coal Measures: Springfield, Illinois.
1865. *Astartella varica*. McChesney, Ill. New Spec. Foss., pl. 2, fig. 7.
1868. *Astartella varica*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 42, pl. 2, fig. 7.
Coal Measures: Springfield, Illinois.
1875. *Astartella varica*. Meek, Pal. Ohio, vol. 2, p. 341, pl. 19, fig. 2.
Coal Measures: Newark, Ohio.
1887. *Astartella varica*. Herrick, Bull. Den. Univ., vol. 2, p. 39, pl. 4, fig. 31.
Coal Measures: Flint Ridge, Ohio.

Astartella vera Hall.

1858. *Astartella vera*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 715, pl. 29, figs. 1a-c.
Coal Measures: Illinois and Indiana.
1887. *Astartella vera* (?). Herrick, Bull. Den. Univ., vol. 2, p. 39.
Coal Measures: Flint Ridge, Ohio.

Astartella vera Hall—Continued.

1891. *Astartella vera*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 250.
Lower Coal Measures: Des Moines, Iowa.
1894. *Astartella vera*. Keyes, Mo. Geol. Surv., vol. 5, p. 125, pl. 46, fig. 6.
Lower Coal Measures: Clinton, Missouri.
1897. *Astartella vera*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 36.
Upper Coal Measures: Poteau Mountain, Indian Territory.

Astartella (species undetermined).

1875. *Astartella* (undetermined sp.) Meek, Pal. Ohio, vol. 2, p. 341, pl. 19, figs. 1a-b.
Coal Measures: Newark, Ohio.

(ASTEROCRINUS Lyon, 1857).

Asterocrinus capitalis. See *Pterotocrinus capitalis*.

Asterocrinus coronarius. See *Pterotocrinus coronarius*.

ASYMPTOCERAS Ryckholt, 1852.

Asymptoceras capax Meek and Worthen.

1865. *Nautilus* (*Cryptoceras*) *capax*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 262.
Coal Measures: Charboniere, Missouri.
1875. *Nautilus* (*Cryptoceras*) *capax*. Meek and Worthen, Geol. Surv. Ill., vol. 6, p. 532, pl. 33, fig. 1.
Coal Measures: Charboniere, Missouri.
1891. *Asymptoceras capax*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 346.

Asymptoceras newloni Hyatt.

1891. *Asymptoceras Newloni*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 346, figs. 48, 49.
Coal Measures: Oswego, Kansas.
1893. *Asymptoceras Newloni*. Hay, Trans. Kans. Acad. Sci., vol. 13, p. 45.
Coal Measures: Oswego, Kansas.

Asymptoceras springeri White and St. John.

1868. *Nautilus* (*Cryptoceras*) *Springeri*. White and St. John, Trans. Chicago Acad. Sci., vol. 1, p. 124, fig. 10.
Upper Coal Measures: Adair County, Iowa.
1891. *Asymptoceras Springeri*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 346.

ATELESTOCRINUS Wachsmuth and Springer, 1886.

Atelestocrinus delicatus Wachsmuth and Springer.

1886. *Atelestocrinus delicatus*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 147; Rev. Palæocr. pt. 3, p. 223.
Lower Burlington L. S.: Burlington, Iowa.

Atelestocrinus robustus Wachsmuth and Springer.

1886. *Atelestocrinus robustus*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 147; Rev. Palæocr., pt. 3, p. 223.
Burlington and Keokuk Transition bed: Near Burlington, Iowa.
Base of Keokuk L. S.: White's Creek Spring, near Nashville, Tennessee.

ATHYRIS McCoy, 1844.

Athyris americana. See *Cleiothyris roissyi*.

Athyris argentea. See *Seminula subtilita*.

Athyris ashlandensis. See *Athyris lamellosa*.

Athyris biloba Winchell.

1865. *Spirigera biloba*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 118.
Goniatite L. S.: Rockford, Indiana.

Athyris corpulenta Winchell.

1863. *Spirigera corpulenta*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 6.
Yellow S. S.: Burlington, Iowa.

Athyris crassicaudalis. See *Cleiothyris crassicaudalis*.

Athyris densa Hall.

1894. *Athyris densa*. Hall, 13th Rep. N. Y. State Geol., p. 651.
St. Louis Group: Washington County, Indiana; Colesburg, Kentucky.
1895. *Athyris densa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, p. 364, pl. 46,
figs. 6-12.
St. Louis Group: Washington County, Indiana; Colesburg, Kentucky;
Lanesville, Indiana.
1897. *Athyris densa*. Hall, 14th Rep. N. Y. State Geol., p. 358, pl. 9, figs. 3-9.
St. Louis Group: Washington County, Indiana; Colesburg, Kentucky.

Athyris differentius. See *Seminula subtilita*.

Athyris formosa. See *Seminula formosa*.

Athyris hannibalensis Swallow.

1860. *Spirigera Hannibalensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 649.
Chemung Rocks: Hannibal, Louisiana, and Sulphur Springs, Missouri.
1865. *Spirigera Hannibalensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 118.
Lithographic L. S.: Clarksville, Missouri.
1870. *Spirigera Hannibalensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 253.
Waverly Group: Sciotoville, Ohio.
1894. *Athyris hannibalensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 91, pl. 41, fig. 9.
Louisiana L. S.: Hannibal, Louisiana, and Sulphur Springs, Missouri.
1895. *Athyris Hannibalensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 46,
figs. 13-15.
Choteau L. S.: Louisiana, Missouri.

Athyris hirsuta. See *Cleiothyris hirsuta*.

Athyris incrassata Hall.

1858. *Athyris incrassatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 600, pl. 12, fig. 6.
Burlington L. S.: Burlington, Iowa; Quincy, Illinois; Hannibal, Missouri.
1895. *Athyris incrassata*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 46, fig. 21;
pl. 83, fig. 39.
Burlington L. S.: Burlington, Iowa.
Warsaw L. S.: Des Moines River, Iowa.
See *Athyris lamellosa*.

Athyris intervarica McChesney.

1861. *Athyris intervarica*. McChesney, Desc. New Spec. Foss., p. 78.
Burlington L. S.: Burlington, Iowa.

Athyris jacksoni Swallow.

1860. *Spirigera Jacksoni*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 651.
Upper Coal Measures: Cass County, Missouri.

Athyris lamellosa Leveille.

1875. *Athyris lamellosa?* Meek, Pal. Ohio, vol. 2, p. 283, pl. 14, figs. 6a, b.
Waverly Group: Sciotoville, Ohio.
1888. *Athyris lamellosa*. Herrick, Bull. Den. Univ., vol. 3, p. 49, pl. 2, fig. 7.
Waverly Group: Licking County, Ohio.

Athyris lamellosa Leveille—Continued.

1888. *Athyris ashlandensis*. Herrick, Bull. Den. Univ., vol. 4, p. 24, pl. 3, fig. 6.
Waverly Group: Ashland County and Moots Run, Licking County, Ohio.
1894. *Athyris incrassatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 91, pl. 41, fig. 10.
Burlington L. S.: Hannibal, Missouri.
1895. *Athyris ashlandensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 10.
Cuyahoga Shale: Ashland and Licking counties, Ohio.
1895. *Athyris lamellosa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 46, figs. 16-20.
Waverly Group: Sciotoville, Ohio.
Keokuk Group: Crawfordville, Indiana.

Athyris missouriensis Winchell.

1865. *Spirigera Missouriensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 117.
Lithographic L. S.: Louisiana, Missouri.
Marshall Group: Weymouth, Medina County, Ohio, 60 feet below conglomerate.

Athyris monticola White.

1874. *Spirigera monticola*. White, Prelim. Rep. Inv. Foss., p. 16.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
1877. *Spirigera monticola*. White, U. S. Geol. Surv. W. 100 Merid., vol. 4, p. 91, pl. 5, figs. 11a-d.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.

Athyris obmaxima. See *Cleiothyris obmaxima*.**Athyris obvia**. See *Cleiothyris obvia*.**Athyris ohioensis** Winchell.

1865. *Spirigera Ohioensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 118.
Marshall Group: Akron, Ohio.
1870. *Spirigera Ohioensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 253.
Waverly Group: Sciotoville, Ohio.
1888. *Athyris ohioensis*. Herrick, Bull. Den. Univ., vol. 3, p. 49, pl. 2, figs. 1-3.
Waverly Group: Licking County, Ohio.

Athyris orbicularis. See *Cleiothyris orbicularis*.**Athyris papilioniformis** McChesney.

1860. *Athyris spiriferoides*. McChesney, Desc. New Pal. Foss., p. 46. (Not *A. spiriferoides* Eaton.)
Kaskaskia L. S.: Fountain Bluff, Illinois.
1865. *Athyris papilioniformis*. McChesney, Ill. New Spec. Foss., pl. 6, fig. 4a-c.
1868. *Athyris ? papilioniformis*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 33, pl. 6, figs. 4a-c.
Chester L. S.: Fountain Bluff, Illinois.

Athyris parrirostra. See *Cleiothyris roissyi*.**Athyris perinflata** McChesney.

1861. *Athyris perinflata*. McChesney, Desc. New Spec. Foss., p. 81
Keokuk Group: Nanvoo, Illinois.

Athyris persinuata. See *Seminula persinuata*.**Athyris planosulcata**. See *Cleiothyris roissyi*.**Athyris prouti** Swallow.

1860. *Spirigera Proutii*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 649.
Chemung Rocks: St. Louis County, near Sulphur Springs, Missouri.
1894. *Athyris proutii*. Keyes, Mo. Geol. Surv., vol. 5, p. 91.
Louisiana L. S.: Hannibal, Louisiana; Clarksville, and Sulphur Springs, Missouri.

Athyris roissyi. See *Cleiothyris roissyi*.

Athyris spiriferoides. See *Athyris papilioniformis*.

Athyris squamosa. See *Cleiothyris squamosa*.

Athyris sublamellosa. See *Cleiothyris roissyi*.

Athyris subquadrata. See *Seminula subquadrata*.

Athyris subtilita. See *Seminula subtilita* and *Seminula dawsoni*.

Athyris trinuclea. See *Seminula trinuclea*.

Athyris ultravarica McChesney.

1861. *Athyris ultravarica*. McChesney, Desc. New Spec. Foss., p. 79.
Keokuk Group: Keokuk, Iowa; Ste. Genevieve, Missouri.

Athyris (species undetermined).

1859. *Spirigera* — ? Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 28.
Upper Coal Measures: Fort Riley, Kansas.
1888. *Athyris* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 7, figs. 19, 34; pl. 12, fig. 28.
Waverly Group: Licking County, Ohio.
1888. *Athyris* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 23.
Waverly Group: Cuyahoga Falls, Ohio.

ATRYPA Dalman, 1827.

Atrypa reticularis Linnæus.

1888. *Atrypa reticularis* ? ? Herrick, Bull. Den. Univ., vol. 3, p. 41, pl. 3, fig. 11.
Waverly Group: Licking County, Ohio.
1888. *Atrypa reticularis*. Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 7.
Shales above Berea Grit: Central College, Ohio.
1889. *Atrypa reticularis*. Herrick, Am. Geol., vol. 3, pl. 4, fig. 7.
1895. *Atrypa reticularis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 7.
Shale above Berea Grit: Ohio.

(AUCELLA Keyserling, 1846.)

Aucella hausmani. See *Myalina swallowi*.

AULACORHYNCHUS Dittmar, 1871.

Aulacorhynchus millepunctatus Meek and Worthen.

1870. *Chonetes* ?? *millepunctatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 35.
Upper Coal Measures: Marion County, Illinois.
1873. *Chonetes* ?? *millepunctata*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 566, pl. 25, fig. 3.
Upper Coal Measures: Marion County, Illinois.
1873. *Isogramma millepunctata*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 568.
1886. *Chonetes* (?) *millepunctata*. Heilprin, 2d Geol. Surv. Penn., Ann. Rep. for 1885, p. 452, p. 440, fig. 3.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Chonetes* (?) *millepunctata*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 268, fig. 3.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1894. *Aulacorhynchus millepunctatus*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 54, figs. 23, 24.
Coal Measures: Crooked Creek, Illinois.

Aulacorhynchus millepunctatus Meek and Worthen—Continued.

1894. *Chonetes millepunctatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 54.
Upper Coal Measures: Kansas City, Missouri.
1895. *Aulacorhynchus millepunctatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2,
pl. 83, figs. 14, 15.
Coal Measures: Crooked Creek, Illinois.

AULOPORA Goldfuss, 1826.**Aulopora gracilis** Keyes.

1894. *Aulopora gracilis*. Keyes, Mo. Geol. Surv., vol. 4, p. 123, pl. 14, fig. 8.
Burlington L. S.: Hannibal, Missouri; Burlington, Iowa.
Keokuk L. S.: Boonville, Missouri; Keokuk, Iowa.

(AULOSTEGES Helmerson, 1847.)

Aulosteges guadalupensis. See *Strophalosia guadalupensis*.

Aulosteges spondyliiformis. See *Strophalosia spondyliiformis*.

AVICULA Klein, 1753.

Avicula acanthoptera. See *Pterinea spinalata*.

Avicula acosta Cox.

1857. *Avicula acosta*. Cox, Geol. Rep. Ky., vol. 3, p. 572, pl. 9, fig. 3.
Coal Measures: Union County, Kentucky; Gallatin County, Illinois.

Avicula circulus. See *Pernopecten circulus*.

Avicula cooperensis. See *Pernopecten cooperensis*.

Avicula custa Hall.

1852. *Avicula ? custa*. Hall, Stansb. Exped. Gt. Salt Lake, p. 412, pl. 2, figs. 1a, b.
Carboniferous: Between Fort Laramie and Great Salt Lake, Utah.

Avicula gryphaata Münster.

1858. *Avicula gryphaata* (?). Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 189.
Upper Permian: Kansas.

Avicula longa Geinitz.

1866. *Gerrillia longa*. Geinitz, Carb. und Dyas in Nebr., p. 32, tab. 2, fig. 15.
Nebraska City.
1872. *Avicula longa*. Meek, U. S. Geol. Surv. Nebr., p. 199, pl. 9, fig. 8.
Upper Coal Measures: Nebraska City and Riverside, Nebraska.
Coal Measures: Atchison, Kansas; Illinois.
1873. *Avicula longa*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 578, pl. 26,
fig. 1.
Coal Measures: Danville, Illinois.
1891. *Avicula longa*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 248.
Middle Coal Measures: Des Moines, Iowa.
1891. *Gerrillia longa*. White, Bull. U. S. Geol. Surv., No. 77, p. 29, pl. 4, fig. 2.
Permian: Goodwin Creek, Baylor County, Texas.
1894. *Avicula longa*. Keyes, Mo. Geol. Surv., vol. 5, p. 113.
Upper Coal Measures: Kansas City, Missouri.

Avicula magna. See *Aviculopecten magna*.

Avicula morganensis Meek and Worthen.

1866. *Pteria* (*Pterinea* ?) *morganensis*. Meek and Worthen, Proc. Acad. Nat. Sci.
Phil., p. 259.
Coal Measures: Morgan County, Illinois.

Avicula morganensis Meek and Worthen—Continued.

1873. *Avicula Morganensis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 576, pl. 26, fig. 14.

Coal Measures: Morgan County, Illinois.

Avicula oblonga. See *Aviculopecten oblongus*.**Avicula ohioense** Herrick.

1887. *Gerrillia* (?) *ohioense*. Herrick, Bull. Den. Univ., vol. 2, p. 36, pl. 4, fig. 13; pl. 3, fig. 12.

Coal Measures: Flint Ridge, Ohio.

1887. *Avicula* (*Gerrillia*) *ohioense*. Herrick, Bull. Den. Univ., vol. 2, p. 145, pl. 14, fig. 22.

Coal Measures: Flint Ridge, Ohio.

Avicula orbiculus Stevens.

1858. *Avicula orbiculus*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 264.

Coal Measures: Summit, Ohio, and Springfield, Illinois.

Avicula pinnaformis. See *Aviculopinna americana*.**Avicula recta** Herrick.

1888. *Avicula* ? *recta*. Herrick, Bull. Den. Univ., vol. 4, p. 115, pl. 10, fig. 13.

Cuyahoga Shale: Cuyahoga Falls, Ohio.

1895. *Avicula recta*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 5.

Cuyahoga Shale: Cuyahoga Falls, Ohio.

Avicula rectalaterarea. See *Aviculopecten rectalaterarius*.**Avicula scutella**. See *Leptodesma scutella*.**Avicula semielliptica** Shumard.

1858. *Avicula semielliptica*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 210.

Upper Coal Measures: Valley of the Verdigris River, Kansas.

Avicula shawneensis Shumard.

1858. *Avicula Shawneensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 211.

Upper Coal Measures: Clifton Park, Kansas.

Avicula speluncaria. See *Pseudomonatis radialis*.**Avicula subspatulata** Herrick.

1888. *Leiopteria* sp. Herrick, Bull. Den. Univ., vol. 3, p. 62, pl. 3, fig. 6.

Waverly Group: Licking County, Ohio.

1888. *Avicula* ? *sub-spatulata*. Herrick, Bull. Den. Univ., vol. 4, p. 30, pl. 5, fig. 11.

Waverly Group: Newark, Ohio.

1889. *Avicula* ? *subspatulata*. Herrick, Am. Geol., vol. 3, pl. 3, fig. 11.

1895. *Avicula subspatulata*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 2.

Burlington: Newark, Ohio.

Avicula sulcata Geinitz.

1866. *Gerrillia* (an *Avicula*) *sulcata*. Geinitz, Carb. und Dyas in Nebr., p. 33, tab. 2, fig. 16.

Nebraska City.

1872. *Avicula* ? *sulcata*. Meek, U. S. Geol. Surv. Nebr., p. 200, pl. 9, fig. 9.

Upper Coal Measures: Nebraska City, Nebraska.

Avicula triplistriata Stevens.

1858. *Avicula triplistriata*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 265.

Coal Measures: Summit, Ohio.

Avicula whitei Winchell.

1863. *Avicula Whitei*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 8.

Yellow S. S.: Burlington, Iowa.

Avicula (species undetermined).

1852. *Aracula* (sp. undetermined). Owen, Geol. Rep. Wis., Iowa, and Minn., tab. 3A, fig. 3.

Carboniferous L. S. (oolite): 3 miles below Augusta, Iowa.

AVICULOPECTEN McCoy, 1851.**Aviculopecten acadicus Hartt.**

1868. *Ariculopecten Acadicus*. Hartt, Dawson's Acad. Geol., p. 307, fig. 114.
Carboniferous L. S.: Windsor, Nova Scotia.

Aviculopecten acutialatus Swallow.

1858. *Pecten acutialatus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 185.
Permian: Valley of Kansas River, Kansas.

Aviculopecten affinis Walcott.

1884. *Ariculopecten affinis*. Walcott, Pal. Eureka Dist., p. 229, pl. 19, figs. 1, 1a.
Lower Carboniferous: Eureka District, Nevada.

Aviculopecten amplus Meek and Worthen.

1860. *Ariculopecten amplus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 454.
Keokuk L. S.: Monroe County, Illinois.
1866. *Ariculopecten amplus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 257, pl. 18, figs. 4a-c.
Keokuk Group: Monroe County, Illinois.

Aviculopecten armigerus Conrad.

1835. *Pecten armigerus*. Conrad, Trans. Geol. Soc. Penn., vol. 1, pt. 2, p. 268, pl. 12, fig. 3.

Aviculopecten batesvillensis Weller.

1897. *Ariculopecten batesvillensis*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 263, pl. 19, figs. 3, 4.
Batesville S. S.: Batesville, Arkansas.

Aviculopecten burlingtonensis Meek and Worthen.

1860. *Ariculopecten Burlingtonensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 453.
Burlington L. S.: Burlington, Iowa.
1866. *Ariculopecten burlingtonensis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 231, pl. 16, figs. 1a, b.
Burlington L. S.: Burlington, Iowa.

Ariculopecten cancellatus. See Orenipecten cancellatus.**Aviculopecten carboniferus Stevens.**

1858. *Pecten carboniferus*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 261.
Coal Measures: Crooked Creek, Marion County, Illinois.
1863. *Pecten Broadheadii*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 97.
Upper Coal Measures: Harrison County, Missouri.
1866. *Pecten Hawni*. Geinitz, Carb. und Dyas in Nebr., p. 36, tab. 2, figs. 19a, b.
Nebraska City, Nebraska.
1872. *Ariculopecten carboniferus*. Meek, U. S. Geol. Surv. Nebr., p. 193, pl. 4, fig. 8; pl. 9, figs. 4a, b.
Upper Coal Measures: Nebraska City, Nebraska.
Coal Measures: Iowa, Illinois, West Virginia.
1874. *Ariculopecten carboniferus*. Meek, Am. Jour. Sci. (3), vol. 7, p. 489.
1884. *Aviculopecten carboniferus*. White, 13th Rep. Geol. Surv. Ind., p. 144, pl. 28, figs. 5-6.
Coal Measures: Lick Branch, near Silverwood, Fountain County, and in Vermilion County, Indiana.

Aviculopecten carboniferus Stevens—Continued.

1887. *Aviculopecten carboniferus*. Herrick, Bull. Den. Univ., vol. 2, p. 67, pl. 3, fig. 13.
Coal Measures: Flint Ridge, Ohio.
1894. *Aviculopecten carboniferus*. Keyes, Mo. Geol. Surv., vol. 5, p. 111, pl. 43, figs. 4a, b.
Upper Coal Measures: Kansas City, Missouri.
1897. *Aviculopecten carboniferus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 33.
Lower Coal Measures: White and Conway counties, Arkansas.

Aviculopecten caroli Winchell.

1863. *Aviculopecten Caroli*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 9.
Yellow S. S. and base of Burlington L. S.: Burlington, Iowa.
1865. *Aviculopecten Caroli*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 125.
Base of Burlington L. S.: Burlington, Iowa.
1870. *Aviculopecten Caroli*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 255.
Waverly Group: Newark, Sciotoville, and Granville, Ohio.
1884. *Aviculopecten Caroli*. Hall, Pal. N. Y., vol. 5, pt. 1, Lam. I, p. 29, pl. 9, fig. 5.
Waverly S. S.: Newark, Ohio.
1888. *Crenipecten caroli*. Herrick, Bull. Den. Univ., vol. 4, pl. 5, fig. 9.
Waverly Group: Gann, Ohio.
1889. *Crenipecten caroli*. Herrick, Am. Geol., vol. 3, pl. 3, fig. 9.
1895. *Crenipecten caroli*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 4.
Kinderhook: Gann, Ohio.

Aviculopecten catactus Meek.

1877. *Aviculopecten catactus*. Meek, U. S. Geol. Expl., 40 Par., vol. 4, p. 93, pl. 3, figs. 10, 10a.
Devonian or Carboniferous: Hamilton, White Pine Mountains, Nevada.

Aviculopecten chesterensis Worthen.

1884. *Aviculopecten chesterensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 20.
Lower Chester L. S.: Chester, Illinois.
1890. *Aviculopecten chesterensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 115, pl. 21, figs. 5, 5a.
Chester L. S.: Chester, Illinois.

Aviculopecten colletti Worthen.

1884. *Aviculopecten colletti*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 21.
Keokuk Shale: Crawfordsville, Indiana.
1890. *Aviculopecten colletti*. Worthen, Geol. Surv. Ill., vol. 8, p. 119, pl. 22, figs. 8b, 13.
Keokuk Group: Crawfordsville, Indiana.

Aviculopecten coloradoensis Newberry.

1861. *Pecten (Monotis?) Coloradensis*. Newberry, Ives' Colo. Expl. Exped., p. 129, pl. 1, figs. 6, 6a.
Upper Carboniferous?: Region of Colorado River?

Aviculopecten cooperi Herrick.

1888. *Aviculopecten cooperi*. Herrick, Bull. Den. Univ., vol. 3, p. 51, pl. 12, figs. 16, 17.
Waverly Group: Licking County, Ohio.
1895. *Crenipecten (Aviculopecten?) cooperi*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, figs. 1-4.
(Cuyahoga Shale): Cuyahoga Falls, Ohio.

Aviculopecten cora Dawson.

1868. *Aviculopecten cora*. Dawson, Acad. Geol., p. 307, fig. 115.
Carboniferous L. S.: Shubenacadie, Nova Scotia.

Aviculopecten coreyanus White.

1874. *Aviculopecten Coreyanus*. White, Prelim. Rep. Inv. Foss., p. 21.
Carboniferous (Coal Measures): East of Mount Taylor, 1 mile south of Pajmata, New Mexico.
1877. *Aviculopecten Coreyanus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 147, pl. 11, figs. 1a, b.
Carboniferous: Bear Spring, near Camp Wingate, New Mexico.
1894. *Aviculopecten coryanus*. Keyes, Mo. Geol. Surv., vol. 5, p. 113.
Upper Coal Measures: Kansas City, Missouri.

Aviculopecten coxanus Meek and Worthen.

1860. *Aviculopecten Coxanus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 453.
Coal Measures: Adams County, Illinois.
1866. *Aviculopecten Coxanus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 326, pl. 26, figs. 6a, b.
Lower Coal Measures: Adams County, Illinois.
1872. *Aviculopecten Coxanus*. Meek, U. S. Geol. Surv. Nebr., p. 196, pl. 9, figs. 2a, b.
Upper Coal Measures: Nebraska City, Nebraska; Illinois.
Lower Coal Measures: Adams County, Illinois.
1886. *Aviculopecten coxanus*. Claypole, Proc. and Coll., Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 247.
Lower Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Aviculopecten coxanus*. Herrick, Bull. Den. Univ., vol. 2, p. 26, pl. 1, figs. 4, 17.
Coal Measures: Flint Ridge, Ohio.
1888. *Aviculopecten coxanus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 232.
Lower Coal Measures: Des Moines, Iowa.
1894. *Aviculopecten coxanus*. Keyes, Mo. Geol. Surv., vol. 5, p. 112.
Upper Coal Measures: Kansas City, Missouri.
1897. *Aviculopecten coxanus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 33.
Upper Coal Measures: Poteau Mountain, Indian Territory.

Aviculopecten crenistriatus Meek.

1871. *Aviculopecten crenistriatus*. Meek, Proc. Acad. Nat. Sci. Phil., p. 60.
Upper Waverly Group: Sciotoville, Ohio.
1875. *Aviculopecten crenistriatus*. Meek, Pal. Ohio, vol. 2, p. 295, pl. 15, figs. 7a, b.
Upper Waverly Group: Sciotoville, Ohio.
1888. *Crenipecten crenistriatus*. Herrick, Bull. Den. Univ., vol. 4, p. 34, pl. 5, fig. 14.
Waverly Group: Newark, Ohio.
1889. *Crenipecten crenistriatus*. Herrick, Am. Geol., vol. 3, pl. 3, fig. 14.
1895. *Crenipecten crenistriatus*. Herrick, Geol. Surv., Ohio, vol. 7, pl. 24, fig. 3.
Burlington: Newark, Ohio.

Aviculopecten curtocardinalis Hall and Whitfield.

1877. *Aviculopecten curto-cardinalis*. Hall and Whitfield, U. S. Geol. Expl., 40 Par., vol. 4, p. 273, pl. 6, fig. 4.
Upper Coal Measures: Foothills southeast of Salt Lake City, Wahsatch Range, Utah.

Aviculopecten debertianus Dawson.

1868. *Aviculopecten Debertianus*. Dawson, Acad. Geol., p. 307, fig. 116.
Carboniferous L. S.: De Bert River, Nova Scotia.

Aviculopecten edwardsi Worthen.

1884. *Aviculopecten edwardsi*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 22.
Upper Keokuk L. S.: Warsaw, Illinois.
1890. *Aviculopecten edwardsi*. Worthen, Geol. Surv. Ill., vol. 8, p. 119, pl. 22, fig. 2.
Keokuk L. S.: Warsaw, Illinois.

Aviculopecten elsahensis Worthen.

1884. *Aviculopecten elsahensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 19.
Kinderhook Group †: one-half mile above Elsah, Jersey County, Illinois.
1890. *Aviculopecten elsahensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 115, pl. 22, fig. 3.
Kinderhook † Group: one-half mile above Elsah, Jersey County, Illinois.

Aviculopecten eurekaensis Walcott.

1884. *Aviculopecten Eurekaensis*. Walcott, Pal. Eureka Dist., p. 227, pl. 19, figs. 2, 3.
Lower Carboniferous: Eureka District, Nevada.

Aviculopecten fasciculatus Keyes.

1894. *Aviculopecten fasciculatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 113, pl. 42, fig. 7. (Not *A. fasciculatus* Hall, 1883.)
Upper Coal Measures: Kansas City, Missouri.

Aviculopecten germanus Miller and Faber.

1892. *Aviculopecten germanus*. Miller and Faber, Jour. Cinn. Soc. Nat. Hist., vol. 15, p. 81, pl. 1, fig. 9.
Coal Measures: Elkhorn Creek, Kentucky.
1897. *Aviculopecten germanus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 33.
Upper Coal Measures: Pottaw Mountain, Indian Territory.

Aviculopecten gradocostus White.

1862. *Aviculopecten gradocostus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 31.
Chemung S. S.: Burlington, Iowa.

Aviculopecten granvillensis Herrick.

1888. *Aviculopecten granvillensis*. Herrick, Bull. Den. Univ., vol. 3, p. 50, pl. 10, fig. 8.
Waverly Group: Licking County, Ohio.
1888. *Crenipecten granvillensis*. Herrick, Bull. Den. Univ., vol. 3, pl. 12, fig. 22.
Waverly Group: Licking County, Ohio.

Aviculopecten haguei Walcott.

1884. *Aviculopecten Haguei*. Walcott, Pal. Eureka Dist., p. 226, pl. 19, fig. 4.
Lower Carboniferous: Eureka District, Nevada.

Aviculopecten halli Swallow.

1860. *Pecten Halli*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 656.
Coal Measures: Willow Springs, Kansas.

Aviculopecten hardinensis Worthen.

1890. *Aviculopecten hardinensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 117, pl. 22, figs. 5, 5a.
St. Louis L. S.: Hardin County, Illinois.

Aviculopecten hertzeri Meek.

1871. *Aviculopecten (Streblopteria ?) hertzeri*. Meek, Proc. Acad. Nat. Sci. Phil., p. 61.
Lower Coal Measures: Newark, Ohio.
1875. *Aviculopecten (Streblopteria ?) Hertzeri*. Meek, Pal. Ohio, vol. 2, p. 330, pl. 19, figs. 13a-c.
Lower Coal Measures: Newark, Ohio.
1887. *Aviculopecten hertzeri*. Herrick, Bull. Den. Univ., vol. 2, p. 25, pl. 1, figs. 5, 10.
Coal Measures: Flint Ridge, Ohio.

Aviculopecten indianensis Meek and Worthen.

1868. *Aviculopecten Indianensis*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 532, pl. 19, figs. 6a, b.
Keokuk Group: Crawfordsville, Indiana.

Aviculopecten interlineatus Meek and Worthen.

1860. *Aviculopecten interlineatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 454.
Upper Coal Measures: Lasalle, Illinois.
1866. *Aviculopecten interlineatus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 329, pl. 26, figs. 7a, b.
Upper Coal Measures: Lasalle, Illinois.
1877. *Aviculopecten ? interlineatus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 149, pl. 11, fig. 3a.
Carboniferous: Confluence of White Mountain and Black rivers, Arizona.
1884. *Aviculopecten (?) interlineatus*. White, 13th Rept. Geol. Surv. Ind., p. 145, pl. 30, fig. 9.
Coal Measures: Indiana (?).
1891. *Aviculopecten interlineatus*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 604, pl. 16, figs. 10, 11.
Coal Measures: Hocking County, Ohio.
1894. *Aviculopecten ? interlineatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 112, pl. 42, fig. 6.
Upper Coal Measures: Kansas City, Missouri.
1895. *Aviculopecten interlineatus*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 489, pl. 12, figs. 10, 11.
Coal Measures: Falls township, Hocking County, Ohio.

Aviculopecten iowensis Miller.

1863. *Aviculopecten occidentalis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 9.
(Not *A. occidentalis* Shumard, 1855.)
Oolitic L. S.: Burlington, Iowa.
1865. *Aviculopecten occidentalis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 126.
1870. *Aviculopecten occidentalis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 255.
Waverly Group: Newark, Ohio.
1883. *Aviculopecten iowensis*. Miller, Am. Pal. Foss., 2d ed., p. 310.

Aviculopecten konincki Meek and Worthen.

1860. *Aviculopecten Koninckii*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 453.
Lower Coal Measures: Alpine, Iowa.
1866. *Aviculopecten Koninckii*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 328, pl. 26, fig. 8.
Lower Coal Measures: Alpine, Iowa.

Aviculopecten limaformis. See *Pernopecten limaformis*.

Aviculopecten lyelli Dawson.

1868. *Aviculopecten Lyelli*. Dawson, Acad. Geol., p. 305, figs. 111a-c.
Carboniferous L. S.: Windsor, Shubenacadie, etc., Nova Scotia.

Aviculopecten lyelli var. alternans Dawson.

1883. *Aviculopecten Lyelli* (var. *alternans*). Dawson, Rep. Peter Redpath Mus., No. 2, p. 12.
Lower Carboniferous: Brookfield and Shubenacadie, Nova Scotia.

Aviculopecten macwhorteri Worthen.

1890. *Aviculopecten mac-whorteri*. Worthen, Geol. Surv. Ill., vol. 8, p. 118, pl. 22, fig. 4.
Kinderhook Group: Kinderhook, Illinois.

Aviculopecten magnus Swallow.

1863. *Avicula magna*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 98.
Archimedes L. S.: Knox County, Missouri.
1894. *Aviculopecten magnus*. Keyes, Mo. Geol. Surv., vol. 5, p. 110, pl. 43, fig. 7.
Burlington L. S.: Springfield, Missouri.

Aviculopecten mazonensis Worthen.

1890. *Aviculopecten mazonensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 117, pl. 22, fig. 9.
Coal Measures: Mazon Creek, Grundy County, Illinois.

Aviculopecten mccoysi Meek and Hayden.

1864. *Aviculopecten McCoyi*. Meek and Hayden, Pal. Upper Mo., p. 50, pl. 2, fig. 9.
Permian: South Cottonwood Creek, Kansas.
1877. *Aviculopecten McCoyi*. White, U. S. Geol. Surv. W. 100 Merid., vol. 4, p. 149, pl. 11, fig. 2a.
Carboniferous: Near Bear Spring, Camp Wingate, New Mexico.

Aviculopecten menardi Worthen.

1884. *Lima? menardi*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 22.
Coal Measures: Menard County, Illinois.
1890. *Aviculopecten menardi*. Worthen, Geol. Surv. Ill., vol. 8, p. 120, pl. 22, fig. 12.
Coal Measures: Menard County, Illinois.

Aviculopecten missouriensis Shumard.

1855. *Pecten Missouriensis*. Shumard, Geol. Rep. Mo., p. 207, pl. C, fig. 16.
St. Louis L. S.: St. Louis County, Missouri.
1886. *Pecten missouriensis*. Claypole, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 247.
Lower Coal Measures: Wilkesbarre, Pennsylvania.
1894. *Aviculopecten missouriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 110.
St. Louis L. S.: St. Louis, Missouri.

Aviculopecten monroensis Worthen.

1884. *Aviculopecten monroensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 21.
St. Louis L. S. (oolitic beds): Monroe County, Illinois.
1890. *Aviculopecten monroensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 114, pl. 22, figs. 8, 8a.
St. Louis L. S. (oolite): Monroe County, Illinois.

Aviculopecten neglectus. See Euchondria neglecta.**Aviculopecten newarkensis Winchell.**

1870. *Aviculopecten Newarkensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 255.
Waverly Group: Newark, Ohio.
1888. *Aviculopecten (Crenipecten) newarkensis?* Herrick, Bull. Den. Univ., vol. 3, p. 52, pl. 3, fig. 31.
Waverly Group: Licking County, Ohio.

Aviculopecten niotensis Worthen.

1884. *Aviculopecten niotense*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 19.

Keokuk L. S.: Niota, Hancock County, Illinois.

1890. *Aviculopecten niotensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 113, pl. 22, fig. 10.

Keokuk L. S.: Niota, Hancock County, Illinois.

Aviculopecten nodocostatus White and Whitfield.

1862. *Aviculopecten nodocostatus*. White and Whitfield, Proc. Bos. Soc. Nat. Hist., vol. 8, p. 296.

Chemung Group: Burlington, Iowa.

Aviculopecten oblongus Meek and Worthen.

1860. *Avicula oblonga*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 454.

Warsaw L. S.: Warsaw, Illinois.

1866. *Aviculopecten oblongus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 258, pl. 18, figs. 3a, b.

Keokuk Group: Warsaw, Illinois.

Aviculopecten occidentaneus Meek.

1877. *Aviculopecten occidentaneus*. Meek, U. S. Geol. Expl., 40 Par., vol. 4, p. 96, pl. 12, figs. 13-13b.

Upper Coal Measure L. S.: Weber Cañon, Wasatch Range, Nevada.

Aviculopecten occidentalis Shumard.

1855. *Pecten occidentalis*. Shumard, Geol. Rep. Mo., p. 207, pl. C, fig. 18.

Coal Measures: Near Plattsburg, Clinton County, Missouri.

1858. *Pecten Cleavelandicus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 184. Permian: Valley of South Cottonwood, Kansas.

1861. *Pecten occidentalis*. Newberry, Ives' Colo. Expl. Exped., p. 128.

Coal Measures: Banks of the Stranger, above Easton, Kansas.

1864. *Aviculopecten* — ? Meek and Hayden, Pal. Upper Mo., p. 50, pl. 2, fig. 10. Permian: Near Chapman's Creek, 18 miles above Fort Riley, Kansas.

1866. *Aviculopecten occidentalis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 331, pl. 27, figs. 4, 5, 5a.

Upper Coal Measures: Saline Creek, Gallatin County, Illinois.

1866. *Pecten Missouriensis?* Geinitz, Carb. und Dyas in Nebr., p. 35, tab. 2, fig. 18.

Nebraska City, Nebraska.

1872. *Aviculopecten occidentalis*. Meek, U. S. Geol. Surv. Nebr., p. 191, pl. 9, fig. 10.

Upper Coal Measures: Rock Bluff, Bennett's Mill, Wyoming and Nebraska City, Nebraska; Illinois, Missouri, Iowa, Kansas, Kentucky.

Coal Measures: Black Hills, Dakota.

1876. *Aviculopecten occidentalis*. White, Powell's Rep. Geol. Uinta Mts., p. 90.

Lower Aubrey Group: Two miles above Belleview, Utah.

1877. *Aviculopecten occidentalis*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 146, pl. 12, figs. 8a, b.

Carboniferous: Camp Apache, Arizona.

1884. *Aviculopecten occidentalis*. White, 13th Rep. Geol. Surv. Ind., p. 143, pl. 28, fig. 2.

Coal Measures: Pike and Gibson counties, Indiana.

1886. *Aviculopecten occidentalis*. Heilprin, 2d Geol. Surv. Penn., Ann. Rep. for 1885, p. 455, fig. 5a, p. 442, fig. 5.

Mill Creek, L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.

1886. *Aviculopecten occidentalis*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 270, fig. 5, p. 271, fig. 5a.

Mill Creek, L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.

Aviculopecten occidentalis Shumard—Continued.

1891. *Aviculopecten occidentalis*. White, Bull. U. S. Geol. Surv., No. 77, p. 29, pl. 4, fig. 1.
Permian: Military Crossing, Baylor County, Texas.
1894. *Aviculopecten occidentalis*. Keyes, Mo. Geol. Surv., vol. 5, p. 110, pl. 42, fig. 3.
Upper Coal Measures: Plattsburg and Kansas City, Missouri.
1897. *Aviculopecten occidentalis*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 34.
Lower Coal Measures: Conway County, Arkansas.

Aviculopecten occidentalis Winchell. See *Aviculopecten iowensis*.

Aviculopecten orestes Worthen.

1884. *Aviculopecten orestes*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 18.
Keokuk L. S.: Warsaw, Illinois.
1890. *Aviculopecten orestes*. Worthen, Geol. Surv. Ill., vol. 8, p. 112, pl. 22, fig. 6.
Keokuk L. S.: Warsaw, Illinois.

Aviculopecten oweni Meek and Worthen.

1860. *Aviculopecten Oweni*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 452.
Keokuk L. S.: Near Warsaw, Illinois.
1866. *Aviculopecten Oweni*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 256, pl. 18, figs. 2a-c.
Keokuk Group: Near Warsaw, Illinois.
1888. *Aviculopecten* (cf. *oweni*). Herrick, Bull. Den. Univ., vol. 3, p. 52, pl. 3, fig. 5.
Waverly Group: Licking County, Ohio.

Aviculopecten parvulus Hall and Whitfield.

1877. *Aviculopecten parvulus*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 274, pl. 6, fig. 6.
Upper Coal Measures L. S.: Foothills southeast of Salt Lake City, Wahsatch Range, Utah.

Aviculopecten pellucidus Meek and Worthen.

1860. *Aviculopecten pellucidus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 455.
Coal Measures: Adams County, Illinois.
1866. *Aviculopecten pellucidus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 327, pl. 26, figs. 5a, b.
Lower Coal Measures: Adams County, Illinois.

Aviculopecten perelongatus Herrick.

1888. *Aviculopecten perelongatus*. Herrick, Bull. Den. Univ., vol. 3, p. 50.
Waverly Group: Licking County, Ohio.

Aviculopecten perocidens Walcott.

1884. *Aviculopecten perocidens*. Walcott, Pal. Eureka Dist., p. 227, pl. 8, fig. 8.
Lower Carboniferous: Eureka District, Nevada.

Aviculopecten pintensis Walcott.

1884. *Aviculopecten Pintensis*. Walcott, Pal. Eureka Dist., p. 228, pl. 8, fig. 6.
Lower Carboniferous: Eureka District, Nevada.

Aviculopecten providencesis Cox.

1857. *Pecten providencesis*. Cox, Geol. Rep. Ky., vol. 3, p. 566, pl. 8, fig. 1.
Coal Measures: Providence, Hopkins County, Kentucky.

Aviculopecten rectalaterarius Cox.

1857. *Avicula recta-lateraria*. Cox, Geol. Rep. Ky., vol. 3, p. 571, pl. 9, fig. 2.
Coal Measures: Union County, Kentucky; Gallatin County, Illinois.

Aviculopecten reticulatus Dawson.

1868. *Aviculopecten reticulatus*. Dawson, Acad. Geol., p. 306, fig. 112.
Carboniferous L. S.: Gay's River, Nova Scotia.

Aviculopecten ringens Swallow.

1858. *Pecten ringens*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 184.
Permian: Valley of Cottonwood, Kansas.

Aviculopecten scalaris Herrick.

1887. *Aviculopecten scalaris*. Herrick, Bull. Den. Univ., vol. 2, p. 26, pl. 1, fig. 8.
Coal Measures: Flint Ridge, Ohio.

Aviculopecten sculptilis Miller.

1891. *Aviculopecten sculptilis*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind.,
p. 92, pl. 20, fig. 5.
Coal Measures: Kansas City, Missouri.
1892. *Aviculopecten sculptilis*. Miller, 17th Rep. Geol. Surv. Ind., p. 702, pl. 20,
fig. 5.
Coal Measures: Kansas City, Missouri.

Aviculopecten simplex Dawson.

1868. *Aviculopecten simplex*. Dawson, Acad. Geol., p. 306, figs. 13a, b.
Carboniferous L. S.: Shubenacadie, Windsor, etc., Nova Scotia.

Aviculopecten sorer Herrick.

1887. *Aviculopecten sorer*. Herrick, Bull. Den. Univ., vol. 2, p. 27, pl. 1, fig. 7;
pl. 3, fig. 16.
Coal Measures: Flint Ridge, Ohio.

Aviculopecten spinuliferus Meek and Worthen.

1870. *Aviculopecten spinuliferus*. Meek and Worthen, Proc. Acad. Nat. Sci.
Phil., p. 39.
Keokuk Group: Crawfordsville, Indiana.
1884. *Aviculopecten spinuliferus*. Worthen, Bull. No. 2, Ill. State Mus. Nat.
Hist., p. 20.
Keokuk Shale: Crawfordsville, Indiana.
1890. *Aviculopecten spinuliferus*. Worthen, Geol. Surv. Ill., vol. 8, p. 116, pl. 22,
fig. 1.
Keokuk Shale: Crawfordsville, Indiana.

Aviculopecten talboti Worthen.

1884. *Aviculopecten talboti*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 21.
St. Louis L. S. (oolite beds): Monroe County, Illinois.
1890. *Aviculopecten talboti*. Worthen, Geol. Surv. Ill., vol. 8, p. 114, pl. 22, figs.
11, 11a.
St. Louis L. S. (oolite): Monroe County, Illinois.

Aviculopecten tenuicostus Winchell.

1863. *Aviculopecten tenuicostus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 10.
Yellow S. S.: Burlington, Iowa.
1865. *Aviculopecten tenuicostus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 125.
Marshall Group: Rockford, Indiana; Hillsdale, Michigan.

Aviculopecten utahensis Meek.

1860. *Pecten Utahensis*. Meek, Proc. Acad. Nat. Sci. Phil., p. 310.
Upper Carboniferous: Summit Spring Pass, between Long and Ruby val-
leys; latitude, 39° 33'; longitude, 115° 12'.
1876. *Aviculopecten Utahensis*. Meek, Simpson's Expl. Gt. Basin Utah, p. 354,
pl. 1, figs. 9a-c.
Upper Carboniferous: Summit Spring Pass, between Long and Ruby
valleys.

Aviculopecten utahensis Meek—Continued.

1877. *Aviculopecten Utahensis*. Meek, U. S. Geol. Expl., 40 Par., vol. 4, p. 95, pl. 9, figs. 7, 7d.
Carboniferous L. S.: Latitude, 39° 33' north; longitude, 115° 12' west, Nevada.

Aviculopecten varsoviensis Worthen.

1883. *Aviculopecten Varsoviensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 321, fig. Keokuk L. S.: Near Warsaw, Illinois.

Aviculopecten weberensis Hall and Whitfield.

1877. *Aviculopecten Weberensis*. Hall and Whitfield, U. S. Geol. Expl., 40 Par., vol. 4, p. 273, pl. 6, fig. 5.
Upper Coal Measures: Foothills of Wahsatch Range, southeast of Salt Lake City, Utah.

Aviculopecten whitei Meek.

1868. *Avicula*. Rogers, Geol. Rep. Penn., vol. 2, p. 833, fig. 689.
1872. *Aviculopecten Whitei*. Meek, U. S. Geol. Surv. Nebr., p. 195, pl. 4, figs. 11a-c.
Upper Coal Measures: Brownville, Nebraska.
Coal Measures: Iowa, Illinois, Pennsylvania.
1891. *Aviculopecten whitei*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 248.
Lower Coal Measures: Des Moines, Iowa.

Aviculopecten williamsi Meek.

1871. *Aviculopecten? williamsi*. Meek, Proc. Acad. Nat. Sci. Phil., p. 178.
Chouteau L. S.: Chouteau Springs, Boone County, Missouri.

Aviculopecten winchelli. See Crenipecten winchelli.**Aviculopecten (species undetermined).**

1868. *Aviculopecten*. Dawson, Acad. Geol., p. 307.
Carboniferous L. S.: Shubenacadie, Nova Scotia.
1887. *Aviculopecten? sp.?* Herrick, Bull. Den. Univ., vol. 2, p. 25, pl. 3, fig. 18.
Coal Measures: Flint Ridge, Ohio.
1887. *Aviculopecten sp.?* Herrick, Bull. Den. Univ., vol. 2, p. 27, pl. 1, fig. 6.
Coal Measures: Flint Ridge, Ohio.
1887. *Aviculopecten?* Herrick, Bull. Den. Univ., vol. 2, pl. 1, fig. 3.
Coal Measures: Flint Ridge, Ohio.
1887. *Aviculopecten sp.?* Herrick, Bull. Den. Univ., vol. 2, pl. 3, fig. above No. 19.
Coal Measures: Flint Ridge, Ohio.
1888. *Aviculopecten*, right valve. Herrick, Bull. Den. Univ., vol. 3, pl. 3, fig. 7.
Waverly Group: Licking County, Ohio.
1888. *Aviculopecten sp.* Herrick, Bull. Den. Univ., vol. 3, pl. 7, fig. 28.
Waverly Group: Licking County, Ohio.
1888. *Aviculopecten sp.* Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 10.
Waverly Group: Cuyahoga Falls, Ohio.
1888. *Aviculopecten sp.* Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 11.
Waverly Group: Cuyahoga Falls, Ohio.
1888. *Aviculopecten sp.* Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 12.
Waverly Group: Cuyahoga Falls, Ohio.
1897. *Aviculopecten? sp.* Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 264, pl. 19, fig. 13.
Batesville S. S.: Batesville, Arkansas.

AVICULOPINNA Meek, 1867.**Aviculopinna americana Meek.**

1866. *Avicula pinnaeformis*. Geinitz, Carb. und Dyas in Nebr., p. 31, tab. 2, fig. 13.
Nebraska City, Nebraska. (Not *Solen pinnaeformis* Geinitz, 1848.)

Aviculopinna americana Meek—Continued.

1867. *Aviculopinna Americana*. Meek, Am. Jour. Sci. (2), vol. 44, p. 282.
 1872. *Aviculopinna Americana*. Meek, U. S. Geol. Surv. Nebr., p. 197, pl. 9, figs. 12a-d.
 Upper Coal Measures: Nebraska City, Nebraska; Iowa.
 1875. *Aviculopinna Americana*. Meek, Pal. Ohio, vol. 2, p. 337, pl. 20, fig. 2.
 Lower Coal Measures: Ohio.
 Upper Coal Measures: Nebraska City, Nebraska; Western Iowa.
 1887. *Aviculopinna americana*. Herrick, Bull. Den. Univ., vol. 2, p. 38, pl. 1, fig. 20.
 Coal Measures: Flint Ridge, Ohio.
 1894. *Aviculopinna americana*. Keyes, Mo. Geol. Surv., vol. 5, p. 115.
 Upper Coal Measures: Forest City, Missouri.

Aviculopinna illinoensis Worthen.

1884. *Aviculopinna illinoensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 13.
 Coal Measures: Peoria County, Illinois.
 1890. *Aviculopinna illinoensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 128, pl. 20, figs. 5, 5a.
 Coal Measures: Peoria County, Illinois.

(*AXINUS* Sowerby, 1821.)

Axinus ovatus. See *Schizodus ovatus*.

(*Axinus securus* Shumard.)

1859. *Axinus securus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 397.
 White Permian L. S.: Guadalupe Mountains.

AXOPHYLLUM Edwards and Haime, 1850.**Axophyllum infundibulum Worthen.**

1875. *Axophyllum infundibulum*. Worthen, Geol. Surv. Ill., vol. 6, p. 525, pl. 32, fig. 7.
 Coal Measures: Clark County, Illinois.

Axophyllum rude White and St. John.

1868. *Axophyllum rudis*. White and St. John, Trans. Chicago Acad. Sci., vol. 1, p. 115.
 Upper Coal Measures: Madison, Ringgold, and Pottawattamie counties Iowa.
 1875. *Axophyllum rudis*. Meek and Worthen, Geol. Surv. Ill., vol. 6, p. 525, pl. 32, figs. 6a-c.
 Coal Measures: Near Collinsville, St. Clair County, Illinois.
 1884. *Axophyllum rudis*. White, 13th Rep. Geol. Surv. Ind., p. 118, pl. 23, figs. 8, 9.
 Coal Measures: Newport, Indiana.
 1894. *Axophyllum rude*. Keyes, Mo. Geol. Surv., vol. 4, p. 107, pl. 12, figs. 5a, b.
 Upper Coal Measures: Kansas City, Missouri.

BACTROPORA Hall, 1887.**Bactropora simplex Ulrich.**

1890. *Bactropora simplex*. Ulrich, Geol. Surv. Ill., vol. 8, p. 663, pl. 70, figs. 14-14b, pl. 71, figs. 6, 6a.
 Keokuk Group: Keokuk, Iowa; Nauvoo and Warsaw, Illinois.
 1894. *Bactropora simplex*. Keyes, Mo. Geol. Surv., vol. 5, p. 35.
 Keokuk L. S.: Clark County, Missouri.

BAIRDIA McCoy, 1844.**Bairdia cestriensis Ulrich.**

1891. *Bairdia cestriensis*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 210, pl. 17, figs. 6a-c, 7a, b.

Chester Group: Near Grayson Springs, Kentucky.

Bairdia (species undetermined).

1859. *Bairdia* sp. (?). Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 388.
White Permian L. S.: Guadalupe Mountains.

BAKEVELLIA King, 1849.**Bakevellia antiqua Munster:**

1858. *Bakevellia antiqua*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 189.
Upper Permian: Near Smoky Hill Fork, Kansas.
1868. *Bakevellia antiqua*. Dawson, Acad. Geol., p. 301.
Carboniferous L. S.: Gay's River and Windsor, Nova Scotia.

Bakevellia illinoiensis Worthen.

1884. *Bakevellia illinoiensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 14.
Upper Coal Measures: Lasalle, Illinois.
1890. *Bakevellia illinoiensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 126, pl. 18, figs. 4, 4a.
Upper Coal Measures: Lasalle, Illinois.

Bakevellia parva Meek and Hayden.

1858. *Bakevellia parva*. Meek and Hayden, Trans. Albany Inst., vol. 4, p. 78.
Permian: Near mouth of Smoky Hill Fork of Kansas River.
1864. *Bakevellia parva*. Meek and Hayden, Pal. Upper Mo., p. 57, pl. 2, figs. 12a, b.
Permian: Near mouth of Smoky Hill Fork of Kansas River and on Cottonwood Creek, Kansas.
1877. *Bakevellia parva*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 153, pl. 11, figs. 7a, b.
Carboniferous: Bear Spring, Camp Wingate, New Mexico, and near Jacob's Pool, Arizona.

Bakevellia pulchra Swallow.

1858. *Bakevellia* (?) *pulchra*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 189.
Lower Permian: Valley of Kansas, Kansas.

BARROISELLA Hall, 1892.**Barroisella subspatulata Meek and Worthen.**

1868. *Lingula subspatulata*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 437, pl. 13, fig. 1.
Black Shale: Near Jonesboro, Union County, Illinois.
1869. *Lingula Subspatulata?* Winchell, Safford's Geol. of Tenn., p. 444.
Shales just above Black Shale: Hickman and Maury counties, Tennessee.
1870. *Lingula subspatulata?* Winchell, Proc. Am. Phil. Soc., vol. 11, p. 248.
Waverly Group: Tennessee; Rockville, Ohio.
1892. *Barroisella subspatulata*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 63, pl. 2, figs. 14-16, and p. 164.
Black Shale: White River, near Rockford, Indiana.

BARYCRINUS Wachsmuth, 1868.**Barycrinus angulatus Meek and Worthen.**

1860. *Cyathocrinus angulatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 393.
Keokuk L. S.: Nauvoo, Illinois.

Barycrinus angulatus Meek and Worthen—Continued.

1866. *Cyathocrinus angulatus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 234, pl. 12, fig. 4.
Keokuk L. S.: Nauvoo, Illinois.

Barycrinus blairi Miller.

1891. *Barycrinus Blairi*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 25, pl. 3, figs. 11-13.
Keokuk Group: Boonville, Missouri.

Barycrinus boonvillensis Miller.

1891. *Barycrinus Boonvillensis*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 24, pl. 3, fig. 5.
Keokuk Group: Boonville, Missouri.

Barycrinus bullatus Hall.

1858. *Cyathocrinus bullatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 624, pl. 18, fig. 1a.
Keokuk L. S.: Green County, Illinois.
1858. *Cyathocrinus protuberans*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 626, pl. 18, fig. 9.
Keokuk L. S.: Warsaw, Illinois.

Barycrinus cornutus Owen and Shumard.

1850. *Cyathocrinus cornutus*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 63, pl. 7, fig. 8.
Carboniferous L. S.: Burlington, Iowa.
1852. *Cyathocrinus cornutus*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 591, tab. 5A, figs. 8a, b.
Carboniferous L. S.: Burlington, Iowa.

Barycrinus crassibrachiatus Hall.

1860. *Cyathocrinus crassibrachiatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 60.
Keokuk L. S.: Warsaw, Illinois.

Barycrinus elrodi Miller and Gurley.

1896. *Barycrinus elrodi*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 38, pl. 2, figs. 25-27.
St. Louis Group: Spergen Hill, Indiana.

Barycrinus expansus Miller and Gurley.

1894. *Barycrinus expansus*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 41, pl. 4, fig. 2.
Keokuk Group: Tennessee.

Barycrinus formosus Miller and Gurley.

1894. *Barycrinus formosus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 33, pl. 3, fig. 6.
Keokuk Group: Washington County, Indiana.

Barycrinus geometricus Meek and Worthen.

1868. *Cyathocrinus*? (sp. undetermined). Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 518, pl. 20, figs. 5a-c.
Keokuk Group: Warsaw, Illinois.
1873. *Barycrinus geometricus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 485, pl. 12, fig. 3.
Keokuk Group: Near Warsaw, Illinois.

Barycrinus herculeus Meek and Worthen.

1868. *Barycrinus Hoveyi* var. *Herculeus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 341.
Keokuk Group: Crawfordsville, Indiana.
1873. *Barycrinus Hoveyi* var. *Herculeus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 485, pl. 13, fig. 2.
Keokuk Group: Crawfordsville, Indiana.

Barycrinus hoveyi Hall.

1861. *Cyathocrinus hoveyi*. Hall, Desc. New Spec. Crin., p. 5.
Keokuk L. S.
1861. *Cyathocrinus Hoveyi*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 293.
Keokuk L. S.: Crawfordsville, Indiana.
1872. *Scaphiocrinus Hoveyi*. Hall, Photo. Plates of Crinoids, pl. 5, fig. 11.
1873. *Barycrinus Hoveyi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 486, pl. 13, fig. 1.
Keokuk Group: Crawfordsville, Indiana.
1894. *Barycrinus hoveyi*. Keyes, Mo. Geol. Surv., vol. 4, p. 209.
Keokuk L. S.: Boonville, Missouri; Keokuk, Iowa.

Barycrinus hoveyi var. *herculeus*. See *Barycrinus herculeus*.

Barycrinus kelloggi White.

1862. *Cyathocrinus Kelloggi*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 8.
Keokuk L. S.: Near Burlington, Iowa.

Barycrinus magister Hall.

1858. *Cyathocrinus magister*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 628, pl. 18, figs. 2a-b, 3a-b.
Keokuk L. S.: Keokuk, Iowa; opposite Madison in Illinois.

Barycrinus magnificus Meek and Worthen.

1868. *Barycrinus magnificus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 340.
Keokuk Group: Near Biggsville, Illinois.
1873. *Barycrinus magnificus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 483, pl. 12, fig. 2.
Keokuk Group: Near Biggsville, Henderson County, Illinois.
1894. *Barycrinus magnificus*. Keyes, Mo. Geol. Surv., vol. 4, p. 210, pl. 26, fig. 4.
Keokuk L. S.: Keokuk, Iowa.

Barycrinus mammatus Worthen.

1873. *Barycrinus mammatus*. Worthen, Geol. Surv. Ill., vol. 5, p. 486, pl. 15, fig. 4.
Keokuk Group: Otter Creek, Jersey County, Illinois.

Barycrinus meekianus Shumard.

1855. *Poteriocrinus meekianus*. Shumard, Geol. Rep. Mo., p. 188, Pl. A, figs. 7a, b.
Chouteau or Encrinital L. S.: Mount Vernon, Moniteau County, Missouri.
1892. *Cyathocrinus meekianus*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 44.
Chouteau L. S.: Pettis County, Missouri.
1894. *Cyathocrinus meekianus*. Miller, 18th Rep. Geol. Surv. Ind., p. 298.
Chouteau L. S.: Pettis County, Missouri.
1894. *Barycrinus meekianus*. Keyes, Mo. Geol. Surv., vol. 4, p. 211.
Burlington L. S.: Mount Vernon, Missouri.

Barycrinus neglectus Miller and Gurley.

1896. *Barycrinus neglectus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 28, pl. 2, figs. 10-12.
Keokuk Group: Crawfordsville, Indiana.

Barycrinus pentagonus Worthen.

1873. *Barycrinus pentagonus*. Worthen, Geol. Surv. Ill., vol. 5, p. 487, pl. 15, fig. 3.
Keokuk L. S.: Otter Creek, Jersey County, Illinois.

Barycrinus princeps Miller and Gurley.

1890. *Barycrinus princeps*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 368, pl. 9, figs. 2, 3.
Keokuk Group: Crawfordsville, Indiana.

Barycrinus rhombiferus Owen and Shumard.

1852. *Poteriocrinus rhombiferus*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 89, pl. 11, fig. 2.
Carboniferous L. S.: Burlington, Iowa.
1852. *Poteriocrinus rhombiferus*. Owen and Shumard. Geol. Rep. Wis., Iowa, and Minn., p. 595, tab. 5B, figs. 2a-c.
Carboniferous L. S.: Burlington, Iowa.
1894. *Barycrinus rhombiferus*. Keyes, Mo. Geol. Surv., vol. 4, p. 210.
Burlington L. S.: Louisiana, Missouri.

Barycrinus sampsoni Miller and Gurley.

1896. *Barycrinus sampsoni*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 81, pl. 5, figs. 1-3.
Burlington Group: Sedalia, Missouri.

Barycrinus sculptilis Hall.

1860. *Cyathocrinus sculptilis*. Hall, Supp., vol. 1, pt. 2, Geol. Rep. Ia., p. 59.
Burlington L. S.: Burlington, Iowa.
1860. *Cyathocrinus scitulus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 393.
Burlington L. S.: Burlington, Iowa.
1861. *Cyathocrinus latus*. Hall, Desc. New Spec. Crin., p. 5.
Burlington L. S.
1861. *Cyathocrinus latus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 292.
Burlington L. S.: Burlington, Iowa.
1861. *Cyathocrinus sculptilis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 148.
1866. *Cyathocrinus sculptilis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 178, pl. 15, figs. 2a, b.
Burlington L. S.: Burlington, Iowa.
1873. *Cyathocrinus sculptilis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 401, pl. 4, fig. 5.
Burlington L. S.: Burlington, Iowa.
1893. *Barycrinus sculptilis*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 29, pl. 3, fig. 12.
Burlington L. S.: Burlington, Iowa.

Barycrinus solidus Hall.

1861. *Cyathocrinus solidus*. Hall, Desc. New Spec. Crin., p. 5.
Burlington L. S.
1861. *Cyathocrinus solidus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 293.
Burlington L. S.: Burlington, Iowa.

Barycrinus spectabilis Meek and Worthen.

1870. *Barycrinus spectabilis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 23.
St. Louis Group: Otter Creek, Jersey County, Illinois.
1873. *Barycrinus spectabilis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 530, pl. 20, fig. 8.
St. Louis Group: Otter Creek, Jersey County, Illinois.

Barycrinus spurius Hall.

1858. *Cyathocrinus spurius*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 625, pl. 18, figs. 7, 8.
Keokuk L. S.: Warsaw, Illinois.
1890. *Barycrinus spurius*. Worthen, Geol. Surv. Ill., vol. 8, p. 99, pl. 14, fig. 4.
Keokuk L. S.: Warsaw, Illinois.
1894. *Barycrinus spurius*. Keyes, Mo. Geol. Surv., vol. 4, p. 209.
Keokuk L. S.: Wayland, Missouri; Keokuk, Iowa.

Barycrinus stellatus Hall.

1858. *Cyathocrinus stellatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 623, pl. 16, figs. 3, 8.
Keokuk L. S.: Warsaw, Illinois.
1865. *Cyathocrinus quinquelobus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 150.
Keokuk Group: Warsaw, Illinois.
1868. *Cyathocrinus quinquelobus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p.
519, pl. 20, fig. 6a, b.
Keokuk Group: Warsaw, Illinois.
1894. *Barycrinus stellatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 210.
Keokuk L. S.: Boonville and Curryville, Missouri; Keokuk, Iowa.

Barycrinus stellifer Miller.

1892. *Barycrinus stellifer*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 46,
pl. 8, figs. 6-9.
Keokuk Group: Harrison County, Indiana.

Barycrinus striatus Worthen.

1875. *Barycrinus striatus*. Worthen, Geol. Surv. Ill., vol. 6, p. 515, pl. 29, fig. 5.
Keokuk L. S.: Otter Creek, Jersey County, Illinois.

Barycrinus subtumidus. See *Cyathocrinus subtumidus*.**Barycrinus thomæ Hall.**

1860. *Cyathocrinus thomæ*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia, p. 61.
Warsaw L. S.: Warsaw, Illinois.

Barycrinus tumidus Hall.

1858. *Cyathocrinus tumidus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 624, pl. 18, figs.
1b-c.
Keokuk L. S.: Warsaw, Illinois.
1890. *Barycrinus tumidus*. Worthen, Geol. Surv. Ill., vol. 8, p. 100, pl. 14, fig. 6.
Keokuk L. S.: Near Hamilton, Illinois.

Barycrinus wachsmuthi Meek and Worthen.

1861. *Cyathocrinus Wachsmuthi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 136.
Burlington L. S.: Burlington, Iowa.
1868. *Cyathocrinus Wachsmuthi*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p.
482, pl. 16, fig. 5.
Burlington Group: Burlington, Iowa.

Barycrinus washingtonensis Miller and Gurley.

1895. *Barycrinus washingtonensis*. Miller and Gurley, Bull. No. 6, Ill. State Mus.
Nat. Hist., p. 49, pl. 4, figs. 18, 19.
Keokuk Group: Washington County, Indiana.

BATOCRINUS Casseday, 1854.**Batocrinus abscissus.** See *Dizygocrinus euconus* var. *abscissus*.**Batocrinus adamsensis Miller and Gurley.**

1896. *Batocrinus adamsensis*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat.
Hist., p. 14, pl. 1, figs. 34, 35.
Burlington Group: Adams County, Illinois.

Batocrinus æqualis. See *Batocrinus subæqualis*.**Batocrinus æqualis Hall.**

1858. *Actinocrinus æqualis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 592, pl. 11, figs.
4a, b.
Burlington L. S.: Burlington, Iowa.

Batocrinus æqualis Hall—Continued.

- *1861. *Actinocrinus doris*. Hall, Desc. New Spec. Crin., p. 15.
Burlington L. S.
1894. *Batocrinus æqualis*. Keyes, Mo. Geol. Surv., vol. 4, p. 179.
Lower Burlington L. S.: Hannibal, Louisiana, and Sedalia, Missouri.
1897. *Batocrinus æqualis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 371,
pl. 28, figs. 5, 6.
Lower Burlington L. S.: Burlington, Iowa; Southern Missouri.

Batocrinus æquibrachiatus. See *Lobocrinus æquibrachiatus*.

Batocrinus affinis Miller and Gurley.

1896. *Batocrinus affinis*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat.
Hist., p. 55, pl. 4, figs. 8, 9.
Burlington Group: Sagetown, Illinois.

Batocrinus agnatus. See *Macrocrinus jucundus*.

Batocrinus albersi Miller and Gurley.

1896. *Batocrinus albersi*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat.
Hist., p. 38, pl. 2, figs. 6-8.
Burlington Group: Burlington, Iowa.

Batocrinus altiusculus. See *Eutrochocrinus christyi*.

Batocrinus approximatus Miller and Gurley.

1896. *Batocrinus approximatus*. Miller and Gurley, Bull. No. 10, Ill. State Mus.
Nat. Hist., p. 56, pl. 4, figs. 10-12.
Burlington Group: Burlington, Iowa.

Batocrinus arcula Miller and Gurley.

1896. *Batocrinus arcula*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat.
Hist., p. 16, pl. 2, figs. 3-5.
St. Louis Group: Washington County, Indiana.

Batocrinus argutus Miller and Gurley.

1896. *Batocrinus argutus*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat.
Hist., p. 9, pl. 1, figs. 8, 9.
Burlington Group: Sedalia, Missouri.
1896. *Batocrinus argutus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat.
Hist., p. 66.

Batocrinus asper Miller and Gurley.

1896. *Batocrinus asper*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist.,
p. 13, pl. 1, figs. 15, 16.
Burlington Group: Sedalia, Missouri.

Batocrinus asperatus Miller and Gurley.

1896. *Batocrinus asperatus*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat.
Hist., p. 12, pl. 1, figs. 13, 14.
Burlington Group: Adams County, Illinois.

Batocrinus aspratilis. See *Batocrinus clypeatus*.

Batocrinus basilicus Miller and Gurley.

1896. *Batocrinus basilicus*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat.
Hist., p. 11, pl. 1, figs. 10-12.
Burlington Group: Sedalia, Missouri.

Batocrinus bisbrachiatus. See *Eutrochocrinus christyi*.

Batocrinus biturbinatus. See *Dizygocrinus biturbinatus*.

Batocrinus blairi. See *Eretmocrinus leucosia*.

Batocrinus boonvillensis. See *Dizygocrinus originarius* var. *adultus*.

***Batocrinus brittsi* Miller.**

1892. *Batocrinus brittsi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 33, pl. 5, figs. 21-23.

Burlington Group: Sedalia, Missouri.

1894. *Batocrinus brittsi*. Miller, 18th Rep. Geol. Surv. Ind., p. 287, pl. 5, figs. 21-23.

Burlington Group: Sedalia, Missouri.

***Batocrinus broadheadi* Miller and Gurley.**

1895. *Batocrinus broadheadi*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 15, pl. 1, figs. 10, 11.

Keokuk Group: Boonville, Missouri.

Batocrinus bulbosus. See *Lobocrinus inflatus*.

***Batocrinus burketi* Miller and Gurley.**

1895. *Batocrinus burketi*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 19, pl. 2, fig. 9.

Keokuk Group: Hamilton, Illinois.

***Batocrinus calvini* Rowley.**

1890. *Batocrinus calvini*. Rowley, Am. Geol., vol. 5, p. 146, fig.

Lower Burlington L. S.: Louisiana, Missouri.

1894. *Batocrinus calvini*. Keyes, Mo. Geol. Surv., vol. 4, p. 180, pl. 23, fig. 4.

Lower Burlington L. S.: Louisiana, Missouri.

1897. *Batocrinus Calvini*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 373, pl. 46, figs. 8a, b.

Lower Burlington L. S.: Louisiana, Missouri.

***Batocrinus calyculus* Hall.**

1860. *Actinocrinus calyculus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 55, pl. 1, figs. 12a-c.

Warsaw L. S.: Spargen Hill, Indiana.

1866. *Actinocrinus calyculus* var. *hardinensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 253.

Upper St. Louis Group: Hardin County, Illinois.

***Batocrinus cantonensis* Miller and Gurley.**

1890. *Batocrinus cantonensis*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 354, pl. 6, fig. 9.

Keokuk Group: Near Canton, Indiana.

1897. *Batocrinus cantonensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 383, pl. 27, figs. 7a, b.

Keokuk Group: Canton, Indiana.

***Batocrinus caroli* Hall.**

1860. *Actinocrinus caroli*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 54, pl. 1, fig. 11.

Warsaw L. S.: Warsaw, Illinois.

Batocrinus cassedayanus. See *Lobocrinus longirostris*.

***Batocrinus casualis* Miller and Gurley.**

1895. *Batocrinus casualis*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 15, pl. 1, figs. 17, 18.

Keokuk Group: Tennessee.

***Batocrinus casula* Miller and Gurley.**

1895. *Batocrinus casula*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 8, pl. 1, figs. 7, 8.

Keokuk Group: Little Barren River, Kentucky.

Batocrinus christyi. See *Eutrochocrinus christyi*.

***Batocrinus cystula* Miller and Gurley.**

1896. *Batocrinus cystula*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 18, pl. 1, figs. 24-26.

St. Louis Group: Lanesville, Indiana.

***Batocrinus clypeatus* Hall.**

1860. *Actinocrinus clypeatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 12.
Burlington L. S.: Burlington, Iowa.

1860. *Actinocrinus inornatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 24.
Burlington L. S.: Burlington, Iowa.

1860. *Actinocrinus papillatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 29.
Burlington L. S.: Burlington, Iowa.

1872. *Actinocrinus clypeatus*. Hall, Photo. Plates of Crinoids, pl. 3, fig. 12.

1872. *Actinocrinus papillatus*. Hall, Photo. Plates of Crinoids, pl. 3, figs. 10, 11.

1892. *Batocrinus comparilis*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 32, pl. 5, figs. 18-20.

Burlington Group: Sedalia, Missouri.

1893. *Batocrinus inornatus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 15, pl. 2, figs. 1-3.

Burlington L. S.: Burlington, Iowa.

1894. *Batocrinus clypeatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 179.

Lower Burlington L. S.: Louisiana, Missouri.

1894. *Batocrinus comparilis*. Miller, 18th Rep. Geol. Surv. Ind., p. 286, pl. 5, figs. 18-20.

Burlington Group: Sedalia, Missouri

1894. *Batocrinus aspratilis*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 21, pl. 5, figs. 5, 6.

Burlington Group: Sedalia, Missouri.

1897. *Batocrinus clypeatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 380, pl. 27, figs. 8a-c.

Lower Burlington L. S.: Burlington, Iowa.

***Batocrinus cognatus* Miller and Gurley.**

1896. *Batocrinus cognatus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 60, pl. 4, figs. 18-21.

Burlington Group: Burlington, Iowa.

Batocrinus comparilis. See *Batocrinus clypeatus*.

***Batocrinus complanatus* Miller and Gurley.**

1896. *Batocrinus complanatus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 27, pl. 1, figs. 19-20.

Burlington Group: Burlington, Iowa.

***Batocrinus consanguineus* Miller and Gurley.**

1896. *Batocrinus consanguineus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 63, pl. 4, figs. 22, 23.

Burlington Group: Burlington, Iowa.

***Batocrinus copiosus* Miller and Gurley.**

1894. *Batocrinus copiosus*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 51, pl. 5, figs. 5, 6.

Kaskaskia Group: Little Barren River.

Batocrinus crawfordsvillensis. See *Dizygocrinus crawfordsvillensis*.

***Batocrinus curiosus* Miller and Gurley.**

1895. *Batocrinus curiosus*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 6, pl. 1, figs. 4-6.

Keokuk Group: Allen County, Kentucky.

Batocrinus davisi. See *Dizygocrinus unionensis*.

Batocrinus decoris Miller.

1891. *Batocrinus decoris*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 61, pl. 10, figs. 7, 8.

Warsaw Group: Spergen Hill, Indiana.

1892. *Batocrinus decoris*. Miller, 17th Rep. Geol. Surv. Ind., p. 671, pl. 10, figs. 7, 8. Warsaw Group: Spergen Hill, Indiana.

Batocrinus decrepitus Miller.

1892. *Batocrinus decrepitus*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 34, pl. 5, fig. 24.

Keokuk Group: Montgomery County, Indiana.

1894. *Batocrinus decrepitus*. Miller, 18th Rep. Geol. Surv. Ind., p. 288, pl. 5, fig. 24. Keokuk Group: Montgomery County, Indiana.

Batocrinus delicatulus Miller and Gurley.

1896. *Batocrinus delicatulus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 12, pl. 1, figs. 20, 21.

Keokuk Group: Boonville, Missouri.

Batocrinus discoideus. See *Batocrinus subæqualis*.

Batocrinus divalis. See *Dizygocrinus unionensis* var. *divalis*.

Batocrinus dodecadactylus. See *Dizygocrinus dodecadactylus*.

Batocrinus douglassi Miller and Gurley.

1897. *Batocrinus douglassi*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 29, pl. 2, fig. 26.

Burlington or Keokuk Group: Bridger Mountains, near Bozeman, Montana.

Batocrinus elegans. See *Batocrinus turbinatus*.

Batocrinus enodatus Miller and Gurley.

1896. *Batocrinus enodatus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 46, pl. 2, figs. 21-23.

Burlington Group: Sagetown, Illinois.

Batocrinus enodis Miller and Gurley.

1896. *Batocrinus enodis*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 25, pl. 1, figs. 16-18.

Burlington Group: Burlington, Iowa.

Batocrinus euconus. See *Dizygocrinus euconus*.

Batocrinus faberi. Miller and Gurley.

1896. *Batocrinus faberi*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 18, pl. 2, figs. 3, 4.

Burlington Group: Adams County, Illinois.

Batocrinus facetus. See *Dizygocrinus facetus*.

Batocrinus folliculus Miller and Gurley.

1896. *Batocrinus folliculus*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 15, pl. 1, figs. 36-38.

Burlington Group: Sedalia, Missouri.

Batocrinus formaceus Miller and Gurley.

1895. *Batocrinus formaceus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 24, pl. 1, figs. 23, 24.

Burlington Group: Sedalia, Missouri.

Batocrinus germanus Miller and Gurley.

1896. *Batocrinus germanus*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 5, pl. 1, figs. 1, 2.

Burlington Group: Sedalia, Missouri.

Batocrinus glaber Miller and Gurley.

1896. *Batocrinus glaber*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 32, pl. 1, figs. 26-28.

Burlington Group: Iowa and Illinois.

Batocrinus gorbyi. See *Dizygocrinus gorbyi*.**Batocrinus grandis** Wachsmuth and Springer.

1859. *Actinocrinus* sp. nobis. Lyon and Casseday, Am. Jour. Sci. (2), vol. 28, p. 240. Clear Creek, Hardin County, Kentucky.

1880. *Actinocrinus wachsmuthi*. White, Cont. to Inv. Pal. No. 8, p. 162, pl. 40, figs. 1a, b. (Not *A. wachsmuthi* White, 1862.)

Keokuk Group: Crawfordsville, Indiana.

1881. *Actinocrinus wachsmuthi*. 2d Ann. Rep. Dep. Stat. and Geol. Ind., p. 510, pl. 7, fig. 6.

Keokuk Group: Crawfordsville, Indiana.

1885. *Batocrinus grandis*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 335. (Rev. Palaeogr. III, p. 113.)

1897. *Batocrinus grandis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 381, pl. 27, figs. 1a-b, 2a-b.

Keokuk Group: Crawfordsville, Indiana.

Batocrinus gurleyi. See *Dizygocrinus gurleyi* and *Dizygocrinus montgomeryensis*.**Batocrinus heteroclitus** Miller and Gurley.

1895. *Batocrinus heteroclitus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 31, pl. 1, figs. 37-39.

Keokuk Group: Boonville, Missouri.

Batocrinus hodgsoni Miller and Gurley.

1896. *Batocrinus hodgsoni*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 8, pl. 1, figs. 6, 7.

Burlington Group: Adams County, Illinois.

Batocrinus honorabilis Miller and Gurley.

1895. *Batocrinus honorabilis*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 10, pl. 1, figs. 9, 10.

Keokuk Group: Tennessee.

Batocrinus icosadactylus Casseday.

1854. *Batocrinus icosadactylus*. Casseday, Zeitsch. d. deutsch. geol. Ges., Band 6, p. 238, taf. 2, figs. 1-1c, 3.

St. Louis Group: Spergen Hill, Indiana.

1892. *Batocrinus icosidactylus*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 24, pl. 4, figs. 1-5.

St. Louis Group: Spergen Hill, Indiana.

1894. *Batocrinus icosidactylus*. Miller, 18th Rep. Geol. Surv. Ind., p. 278, pl. 4, figs. 1-5.

St. Louis Group: Spergen Hill, Indiana.

1897. *Batocrinus icosidactylus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 368, pl. 27, figs. 3a-c.

Warsaw L. S.: Spergen Hill, Indiana; Barren County, Kentucky.

Batocrinus ignotus Miller and Gurley.

1895. *Batocrinus ignotus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 28, pl. 1, figs. 31-33.

Keokuk Group: Boonville, Missouri.

Batocrinus imparalis Miller and Gurley.

1895. *Batocrinus imparalis*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 20, pl. 1, figs. 17, 18.

Burlington Group: Sedalia, Missouri.

Batocrinus inconsuetus Miller and Gurley.

1895. *Batocrinus inconsuetus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 25, pl. 1, figs. 25-27.
Keokuk Group: Boonville, Missouri.

Batocrinus incultus Miller and Gurley.

1895. *Batocrinus incultus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 21, pl. 1, figs. 19, 20.
Burlington Group: Sedalia, Missouri.

Batocrinus inflatus. See *Lobocrinus inflatus*.

Batocrinus inopinatus Miller and Gurley.

1895. *Batocrinus inopinatus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 36, pl. 2, figs. 4-6.
Keokuk Group: Boonville, Missouri.

Batocrinus inornatus. See *Batocrinus clypeatus*.

Batocrinus insolens Miller and Gurley.

1896. *Batocrinus insolens*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 35, pl. 2, figs. 1, 2.
Burlington Group: Burlington, Iowa.

Batocrinus insperatus Miller and Gurley.

1895. *Batocrinus insperatus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 22, pl. 1, figs. 21, 22.
Burlington Group: Sedalia, Missouri.

Batocrinus insuetus Miller and Gurley.

1895. *Batocrinus insuetus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 14, pl. 1, figs. 8, 9.
Keokuk Group: Boonville, Missouri.

Batocrinus irregularis Casseday.

1854. *Batocrinus irregularis*. Casseday, Zeitsch. d. deutsch. geol. Ges., Band 6, p. 240, taf. 2, figs 2-2c.
St. Louis Group: Spergen Hill, Indiana.
1892. *Batocrinus irregularis*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 26, pl. 4, figs. 6-9.
St. Louis Group: Spergen Hill, Indiana.
1894. *Batocrinus irregularis*. Miller, 18th Rep. Geol. Surv. Ind., p. 280, pl. 4, figs. 6-9.
St. Louis Group: Spergen Hill, Indiana.
1897. *Batocrinus irregularis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 369, pl. 27, figs. 4a-c.
Warsaw L. S.: Spergen Hill, Indiana; Barren County, Kentucky.

Batocrinus jessiae Miller and Gurley.

1896. *Batocrinus jessiae*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 20, pl. 1, figs. 27-32.
Burlington Group: Sedalia, Missouri.

Batocrinus jucundus. See *Macrocrinus jucundus*.

Batocrinus labellum Miller and Gurley.

1895. *Batocrinus labellum*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 21, pl. 2, figs. 10-12.
Keokuk Group: Washington County, Indiana.

Batocrinus laciniosus Miller and Gurley.

1895. *Batocrinus laciniosus*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 14, pl. 1, figs. 15, 16.
Keokuk Group: Tennessee.

Batocrinus latus. See *Batocrinus turbinatus*.

Batocrinus laterna Miller and Gurley.

1895. *Batocrinus laterna*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 12, pl. 1, figs. 13, 14.

Keokuk Group: White Creek Springs, Tennessee.

Batocrinus laura Hall.

- *1861. *Actinocrinus laura*. Hall, Desc. New Spec. Crin., p. 15.

Burlington L. S.

1893. *Batocrinus laura*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 17, pl. 1, figs. 15, 16.

Brown beds of Burlington L. S.: Burlington, Iowa.

1894. *Batocrinus scyphus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 23, pl. 5, figs. 7-9.

Burlington Group: Sedalia, Missouri.

1894. *Batocrinus laura*. Keyes, Mo. Geol. Surv., vol. 4, p. 182, pl. 23, fig. 8.

Upper Burlington L. S.: Lagrange, Missouri; Quincy, Illinois.

1897. *Batocrinus laura*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 384, pl. 29, figs. 5a-d.

Upper Burlington L. S.: Burlington, Iowa.

Batocrinus laura var. *sinuosus* Hall.

1860. *Actinocrinus sinuosus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 26.

Burlington L. S.: Burlington, Iowa.

1872. *Actinocrinus sinuosus*. Hall, Photo. Plates of Crinoids, pl. 3, figs. 8, 9.

1897. *Batocrinus laura* var. *sinuosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 385.

Upper Burlington L. S.: Burlington, Iowa.

Batocrinus lepidus Hall.

1860. *Actinocrinus lepidus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 32.

Burlington L. S.: Burlington, Iowa.

1893. *Batocrinus lepidus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 16, pl. 1, figs. 17, 18.

Burlington L. S.: Burlington, Iowa.

1897. *Batocrinus lepidus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 372, pl. 28, figs. 2, 3.

Lower Burlington L. S.: Burlington, Iowa; Southern Missouri.

Batocrinus levigatus Miller and Gurley.

1896. *Batocrinus levigatus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 29, pl. 1, figs. 21, 22.

Burlington Group: Burlington, Iowa.

Batocrinus levis Miller and Gurley.

1896. *Batocrinus levis*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 23, pl. 1, figs. 13-15.

Burlington Group: Burlington, Iowa.

Batocrinus longirostris. See *Lobocrinus longirostris*.

Batocrinus lovei. See *Eutrochoocrinus lovei*.

Batocrinus lyonanus. See *Dizygocrinus biturbinatus*.

Batocrinus macbridei Wachsmuth and Springer.

1890. *Batocrinus macbridei*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 172, pl. 15, fig. 4; pl. 16, figs. 11, 12.

Kinderhook Group: Legrand, Iowa.

Batocrinus macbridei Wachsmuth and Springer—Continued.

1897. *Batocrinus Macbridei*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 376, pl. 30, figs. 1-3.
Kinderhook Group: Legrand, Marshall County, Iowa.

Batocrinus marinus Miller and Gurley.

1890. *Batocrinus marinus*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 19, pl. 4, figs. 3, 4.
Keokuk Group: Crawfordsville, Indiana.
1890. *Batocrinus marinus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 340, pl. 4, figs. 3, 4.
Keokuk Group: Crawfordsville, Indiana.

Batocrinus mediocris. See *Dizygocrinus originarius* var. *adultus*.**Batocrinus modestus** Miller and Gurley.

1896. *Batocrinus modestus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 30, pl. 1, figs. 34-36.
Keokuk Group: Boonville, Missouri.

Batocrinus modulus Miller and Gurley.

1896. *Batocrinus modulus*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 16, pl. 1, figs. 39-41.
Burlington Group: Adams County, Illinois.

Batocrinus montgomeryensis. See *Dizygocrinus montgomeryensis*.**Batocrinus mundulus** Hall.

1860. *Actinocrinus mundulus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 39.
Keokuk L. S.: Warsaw, Illinois.
1860. *Actinocrinus similis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 40.
Keokuk L. S.: Warsaw, Illinois.
1860. *Actinocrinus clarigerus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 44.
Keokuk L. S.: Nauvoo, Illinois.
1897. *Batocrinus mundulus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 382, pl. 30, figs. 4a-b, 5.
Keokuk Group: Keokuk, Iowa; Nauvoo, Illinois.

Batocrinus nanus Miller and Gurley.

1896. *Batocrinus nanus*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 17, pl. 1, figs. 42-44.
Burlington Group: Sedalia, Missouri.

Batocrinus nashvillæ. See *Lobocrinus nashvillæ*.**Batocrinus neglectus**. See *Eretmocrinus neglectus*.**Batocrinus niteus** Miller and Gurley.

1896. *Batocrinus niteus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 15, pl. 1, figs. 30-32.
Burlington Group: Burlington, Iowa.

Batocrinus nitidulus Miller and Gurley.

1896. *Batocrinus nitidulus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 17, pl. 1, figs. 12, 13.
Keokuk Group: Boonville, Missouri.

Batocrinus nodosarius Miller and Gurley.

1896. *Batocrinus nodosarius*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 22, pl. 1, figs. 11, 12.
Burlington Group: Adams County, Illinois.

Batocrinus nodosus Miller and Gurley.

1896. *Batocrinus nodosus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 5, pl. 1, figs. 1-3.

Burlington Group: Adams County, Illinois.

Batocrinus nodulosus Miller and Gurley.

1896. *Batocrinus nodulosus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 6, pl. 1, figs. 4-6.

Burlington Group: Adams County, Illinois.

Batocrinus oblatum. See *Dizygocrinus rotundus*.**Batocrinus parilis** Miller and Gurley.

1896. *Batocrinus parilis*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 17, pl. 2, figs. 1, 2.

Keokuk Group: Boonville, Missouri.

Batocrinus peculiaris Miller and Gurley.

1895. *Batocrinus peculiaris*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 18, pl. 1, figs. 14-16.

Keokuk Group: Boonville, Missouri.

Batocrinus pettisensis Miller and Gurley.

1896. *Batocrinus pettisensis*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 19, pl. 2, figs. 5, 6.

Burlington Group: Sedalia, Missouri.

Batocrinus pileus Miller and Gurley.

1895. *Batocrinus pileus*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 18, pl. 2, figs. 6-8.

St. Louis Group: Washington County, Indiana.

Batocrinus pistilliformis. See *Lobocrinus pyriformis*.**Batocrinus pistillus** Meek and Worthen.

1865. *Actinocrinus pistillus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 152. Burlington L. S.: Burlington, Iowa.

1868. *Actinocrinus (Batocrinus) pistillus*. Meek and Worthen, Geol. Surv. Ill., vol. 8, p. 472, pl. 16, figs. 4a, b.

Burlington Group: Burlington, Iowa.

1897. *Batocrinus pistillus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 378, pl. 31, figs. 4a, b.

Upper Burlington L. S.: Burlington, Iowa.

Batocrinus planodiscus. See *Eutrochocrinus planodiscus*.**Batocrinus planus** Miller and Gurley.

1895. *Batocrinus planus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 37, pl. 2, figs. 11-14.

Burlington Group: Sedalia, Missouri.

Batocrinus poculum Miller and Gurley.

1890. *Batocrinus poculum*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 352, pl. 6, figs. 6, 7.

Kinderhook Group: Legrand, Iowa.

1897. *Batocrinus poculum*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 378, pl. 30, fig. 6.

Kinderhook Group: Legrand, Marshall County, Iowa.

Batocrinus politus Miller and Gurley.

1896. *Batocrinus politus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 31, pl. 1, figs. 23-25.

Burlington Group: Burlington, Iowa.

Batocrinus polydactylus Miller and Gurley.

1895. *Batocrinus polydactylus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 5, pl. 1, fig. 1.
Keokuk Group: Boonville, Missouri.

Batocrinus procerus Miller and Gurley.

1895. *Batocrinus procerus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 33, pl. 1, figs. 40-42.
Keokuk Group: Boonville, Missouri.

Batocrinus prodigialis Miller and Gurley.

1895. *Batocrinus prodigialis*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 39, pl. 3, figs. 4-6.
Keokuk Group: Button Mould Knob, Kentucky.

Batocrinus proximus Miller and Gurley.

1896. *Batocrinus proximus*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 7, pl. 1, figs. 4, 5.
Burlington Group: Sedalia, Missouri.

Batocrinus pulchellus. See *Dizygocrinus unionensis*.

Batocrinus pyriformis. See *Lobocrinus pyriformis*.

Batocrinus quasillus Meek and Worthen.

1868. *Batocrinus quasillus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 352.
Lower Burlington L. S.: Burlington, Iowa.
1873. *Batocrinus quasillus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 369, pl. 5, fig. 2.
Burlington L. S.: Burlington, Iowa.
1897. *Batocrinus quasillus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 372, pl. 28, figs. 4a, b.
Lower Burlington L. S.: Burlington, Iowa.

Batocrinus regalis Miller and Gurley.

1896. *Batocrinus regalis*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 14, pl. 1, figs. 22-24.
Burlington Group: Sedalia, Missouri.

Batocrinus reliquus Miller and Gurley.

1897. *Batocrinus reliquus*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 22, pl. 1, figs. 15-17.
Burlington Group: Near Sharon, Missouri.

Batocrinus remibrachiatus. See *Eretmocrinus remibrachiatus*.

Batocrinus remotus Miller and Gurley.

1896. *Batocrinus remotus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 43, pl. 2, figs. 15-17.
Burlington Group: Burlington, Iowa.

Batocrinus repertus Miller and Gurley.

1896. *Batocrinus repertus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 70, pl. 4, figs. 28-30.
Burlington Group: Sedalia, Missouri.

Batocrinus repositus Miller and Gurley.

1896. *Batocrinus repositus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 45, pl. 2, figs. 18-20.
Burlington Group: Burlington, Iowa.

Batocrinus reservatus Miller and Gurley.

1897. *Batocrinus reservatus*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 25, pl. 1, figs. 22-25.

Burlington Group: Near Sharon, Missouri.

Batocrinus rotadentatus Rowley and Hare.

1891. *Batocrinus rotadentatus*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 102, pl. 2, figs. 17, 18.

Lower Burlington L. S.: Louisiana, Missouri.

1897. *Batocrinus rotadentatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 374, pl. 46, fig. 7.

Lower Burlington L. S.: Louisiana, Missouri.

Batocrinus rotuliformis Miller and Gurley.

1897. *Batocrinus rotuliformis*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 26, pl. 1, figs. 26, 27; pl. 2, figs. 1, 2.

Burlington Group: Near Sharon, Missouri.

Batocrinus rotundus. See *Dizygocrinus rotundus*.

Batocrinus rudis Miller and Gurley.

1896. *Batocrinus rudis*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 52, pl. 4, fig. 4.

Keokuk Group: Little Barren River, Kentucky.

Batocrinus rusticellus Miller and Gurley.

1897. *Batocrinus rusticellus*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 23, pl. 1, figs. 18-21.

Burlington Group: Near Sharon, Missouri.

Batocrinus rusticus Miller and Gurley.

1897. *Batocrinus (?) rusticus*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 28, pl. 2, figs. 3-6.

Burlington Group: Near Sharon, Missouri.

Batocrinus saccoellus Miller and Gurley.

1896. *Batocrinus saccoellus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 40, pl. 2, figs. 9-11.

Burlington Group: Burlington, Iowa.

Batocrinus saeculus Miller and Gurley.

1894. *Batocrinus saeculus*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 52, pl. 5, figs. 7-9.

Warsaw Group: Washington County, Indiana.

Batocrinus sagetownensis Miller and Gurley.

1896. *Batocrinus sagetownensis*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 54, pl. 4, figs. 5-7.

Burlington Group: Sagetown, Illinois.

Batocrinus salemensis Miller and Gurley.

1896. *Batocrinus salemensis*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 8, pl. 1, figs. 10-12.

Warsaw Group: Salem, Indiana.

Batocrinus sampsoni Miller and Gurley.

1895. *Batocrinus sampsoni*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 7, pl. 1, figs. 2, 3.

Keokuk Group: Boonville, Missouri.

Batocrinus scitulus Miller and Gurley.

1897. *Batocrinus scitulus*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 19, pl. 1, figs. 10, 11.

Burlington Group: Near Sharon, Missouri.

Batocrinus scyphus. See *Batocrinus laura*.

***Batocrinus sedaliensis* Miller and Gurley.**

1896. *Batocrinus sedaliensis*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 71, pl. 4, figs. 31, 32.
Burlington Group: Sedalia, Missouri.

***Batocrinus selectus* Miller and Gurley.**

1896. *Batocrinus selectus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 37, pl. 2, figs. 3-5.
Burlington Group: Sagetown, Illinois.

***Batocrinus senex* Miller and Gurley.**

1897. *Batocrinus senex*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 21, pl. 1, figs. 12-14.
Burlington Group: Near Sharon, Missouri.

***Batocrinus serratus* Miller and Gurley.**

1895. *Batocrinus serratus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 27, pl. 1, figs. 28-30.
Keokuk Group: Boonville, Missouri.

***Batocrinus sharonensis* Miller and Gurley.**

1897. *Batocrinus sharonensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 18, pl. 1, figs. 7-9.
Burlington Group: Near Sharon, Missouri.

***Batocrinus shepardi* Rowley.**

1893. *Batocrinus shepardi*. Rowley, Am. Geol., vol. 12, p. 305, pl. 14, fig. 3.
Burlington L. S.: Springfield, Missouri.

***Batocrinus signatus* Miller and Gurley.**

1896. *Batocrinus signatus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 10, pl. 1, figs. 16, 17.
Keokuk Group: Keokuk, Iowa.

***Batocrinus solitarius* Miller and Gurley.**

1896. *Batocrinus solitarius*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 22, pl. 2, figs. 8-11.
Burlington Group: Adams County, Illinois.

***Batocrinus speciosus* Miller and Gurley.**

1896. *Batocrinus speciosus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 47, pl. 2, figs. 24-26.
Burlington Group: Burlington, Iowa.

***Batocrinus spergenensis* Miller.**

1891. *Batocrinus spergenensis*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 60, pl. 10, figs. 5, 6.
Warsaw Group: Spergen Hill, Indiana.
1892. *Batocrinus spergenensis*. Miller, 17th Rep. Geol. Surv. Ind., p. 670, pl. 10, figs. 5, 6.
Warsaw Group: Spergen Hill, Indiana.

***Batocrinus spinosus* Miller and Gurley.**

1895. *Batocrinus spinosus*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 5, pl. 1, figs. 1-3.
Keokuk Group: Little Barren River, Kentucky.

***Batocrinus spurius* Miller and Gurley.**

1896. *Batocrinus spurius*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 20, pl. 2, figs. 7-9.
Burlington Group: Burlington, Iowa.

Batocrinus stelliformis Miller and Gurley.

1896. *Batocrinus stelliformis*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 9, pl. 1, figs. 13-15.

Keokuk Group: Boonville, Missouri.

Batocrinus steropes Hall.

1860. *Actinocrinus steropes*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 43.

Keokuk L. S.: Opposite Keokuk, Iowa, in Illinois.

Batocrinus strenuus Miller and Gurley.

1896. *Batocrinus strenuus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 11, pl. 1, figs. 18, 19.

Keokuk Group: Boonville, Missouri.

Batocrinus subaequatus Miller and Gurley.

1896. *Batocrinus subaequatus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 72, pl. 4, figs. 33-35.

Burlington Group: Sedalia, Missouri.

Batocrinus subaequalis McChesney.

1858. *Actinocrinus discoideus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 594. (Crushed specimen.)

Burlington L. S.: Burlington, Iowa.

1860. *Actinocrinus subaequalis*. McChesney, Desc. New Pal. Foss., p. 17.

Burlington L. S.: Monmouth, Illinois; Burlington, Iowa.

1860. *Actinocrinus discoideus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 2, fig. 9.

1860. *Actinocrinus formosus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 30.

Burlington L. S.: Burlington, Iowa.

1865. *Actinocrinus subaequalis*. McChesney, Ill. New. Spec. Foss., pl. 5, figs. 7a, b.

1868. *Actinocrinus subaequalis*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 13, pl. 5, figs. 7a, b.

Burlington L. S.: Monmouth, Illinois; Burlington, Iowa.

1872. *Actinocrinus formosus*. Hall, Photo. Plates of Crinoids, pl. 3, fig. 1.

1893. *Batocrinus discoideus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 14, pl. 1, figs. 19, 20, p. 28, fig.

Burlington L. S.: Burlington, Iowa.

1894. *Batocrinus aequabilis*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 25, pl. 5, figs. 13-15.

Burlington Group: Sedalia, Missouri.

1897. *Batocrinus subaequalis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 369, pl. 28, figs. 7a, b, 8a, b, 9.

Lower Burlington L. S.: Burlington, Iowa; Southern Missouri.

Batocrinus subconicus. See *Dizygocrinus euconus*.**Batocrinus sublaevis** Miller and Gurley.

1896. *Batocrinus sublaevis*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 41, pl. 2, figs. 12-14.

Burlington Group: Sagetown, Illinois.

Batocrinus subovatus Miller and Gurley.

1896. *Batocrinus subovatus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 50, pl. 2, figs. 30, 31.

Burlington Group: Burlington, Iowa.

Batocrinus subrotundatus Hall.

1860. *Actinocrinus subrotundatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 2, fig. 4. (Diagram.)

Batocrinus subrotundatus Miller and Gurley.

1896. *Batocrinus subrotundatus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 48, pl. 2, figs. 27-29.

Burlington Group: Burlington, Iowa.

Batocrinus scyphus. See *Batocrinus laura*.

***Batocrinus sedaliensis* Miller and Gurley.**

1896. *Batocrinus sedaliensis*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 71, pl. 4, figs. 31, 32.
Burlington Group: Sedalia, Missouri.

***Batocrinus selectus* Miller and Gurley.**

1896. *Batocrinus selectus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 37, pl. 2, figs. 3-5.
Burlington Group: Sagetown, Illinois.

***Batocrinus senex* Miller and Gurley.**

1897. *Batocrinus senex*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 21, pl. 1, figs. 12-14.
Burlington Group: Near Sharon, Missouri.

***Batocrinus serratus* Miller and Gurley.**

1895. *Batocrinus serratus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 27, pl. 1, figs. 28-30.
Keokuk Group: Boonville, Missouri.

***Batocrinus sharonensis* Miller and Gurley.**

1897. *Batocrinus sharonensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 18, pl. 1, figs. 7-9.
Burlington Group: Near Sharon, Missouri.

***Batocrinus shepardi* Rowley.**

1893. *Batocrinus shepardi*. Rowley, Am. Geol., vol. 12, p. 305, pl. 14, fig. 3.
Burlington L. S.: Springfield, Missouri.

***Batocrinus signatus* Miller and Gurley.**

1896. *Batocrinus signatus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 10, pl. 1, figs. 16, 17.
Keokuk Group: Keokuk, Iowa.

***Batocrinus solitarius* Miller and Gurley.**

1896. *Batocrinus solitarius*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 22, pl. 2, figs. 8-11.
Burlington Group: Adams County, Illinois.

***Batocrinus speciosus* Miller and Gurley.**

1896. *Batocrinus speciosus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 47, pl. 2, figs. 24-26.
Burlington Group: Burlington, Iowa.

***Batocrinus spergenensis* Miller.**

1891. *Batocrinus spergenensis*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 60, pl. 10, figs. 5, 6.
Warsaw Group: Spergen Hill, Indiana.
1892. *Batocrinus spergenensis*. Miller, 17th Rep. Geol. Surv. Ind., p. 670, pl. 10, figs. 5, 6.
Warsaw Group: Spergen Hill, Indiana.

***Batocrinus spinosus* Miller and Gurley.**

1895. *Batocrinus spinosus*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 5, pl. 1, figs. 1-3.
Keokuk Group: Little Barren River, Kentucky.

***Batocrinus spurius* Miller and Gurley.**

1896. *Batocrinus spurius*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 20, pl. 2, figs. 7-9.
Burlington Group: Burlington, Iowa.

Batocrinus stelliformis Miller and Gurley.

1896. *Batocrinus stelliformis*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 9, pl. 1, figs. 13-15.

Keokuk Group: Boonville, Missouri.

Batocrinus steropes Hall.

1860. *Actinocrinus steropes*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 43.

Keokuk L. S.: Opposite Keokuk, Iowa, in Illinois.

Batocrinus strenuus Miller and Gurley.

1896. *Batocrinus strenuus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 11, pl. 1, figs. 18, 19.

Keokuk Group: Boonville, Missouri.

Batocrinus subaequatus Miller and Gurley.

1896. *Batocrinus subaequatus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 72, pl. 4, figs. 33-35.

Burlington Group: Sedalia, Missouri.

Batocrinus subaequalis McChesney.

1858. *Actinocrinus discoides*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 594. (Crushed specimen.)

Burlington L. S.: Burlington, Iowa.

1860. *Actinocrinus subaequalis*. McChesney, Desc. New Pal. Foss., p. 17.

Burlington L. S.: Monmouth, Illinois; Burlington, Iowa.

1860. *Actinocrinus discoides*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 2, fig. 9.

1860. *Actinocrinus formosus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 30.

Burlington L. S.: Burlington, Iowa.

1865. *Actinocrinus subaequalis*. McChesney, Ill. New. Spec. Foss., pl. 5, figs. 7a, b.

1868. *Actinocrinus subaequalis*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 13, pl. 5, figs. 7a, b.

Burlington L. S.: Monmouth, Illinois; Burlington, Iowa.

1872. *Actinocrinus formosus*. Hall, Photo. Plates of Crinoids, pl. 3, fig. 1.

1893. *Batocrinus discoides*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 14, pl. 1, figs. 19, 20, p. 28, fig.

Burlington L. S.: Burlington, Iowa.

1894. *Batocrinus aequabilis*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 25, pl. 5, figs. 13-15.

Burlington Group: Sedalia, Missouri.

1897. *Batocrinus subaequalis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 369, pl. 28, figs. 7a, b, 8a, b, 9.

Lower Burlington L. S.: Burlington, Iowa; Southern Missouri.

Batocrinus subconicus. See *Dizygocrinus euconus*.**Batocrinus sublaevis** Miller and Gurley.

1896. *Batocrinus sublaevis*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 41, pl. 2, figs. 12-14.

Burlington Group: Sagetown, Illinois.

Batocrinus subovatus Miller and Gurley.

1896. *Batocrinus subovatus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 50, pl. 2, figs. 30, 31.

Burlington Group: Burlington, Iowa.

Batocrinus subrotundatus Hall.

1860. *Actinocrinus subrotundatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 2, fig. 4. (Diagram.)

Batocrinus subrotundatus Miller and Gurley.

1896. *Batocrinus subrotundatus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 48, pl. 2, figs. 27-29.

Burlington Group: Burlington, Iowa.

Batocrinus subscitulus Miller and Gurley.

1896. *Batocrinus subscitulus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 51, pl. 3, figs. 9-11.
Burlington Group: Sedalia, Missouri.

Batocrinus subtractus. See *Lobocrinus nashvillæ* var. *subtractus*.**Batocrinus sicceti**. See *Dizygocrinus montgomeryensis*.**Batocrinus trochiscus**. See *Eutrochocrinus christyi* var. *trochiscus*.**Batocrinus tuberculatus** Wachsmuth and Springer.

1897. *Batocrinus tuberculatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 379, pl. 28, figs. 10a, b.
Lower Burlington L. S.: Burlington, Iowa.

Batocrinus turbinatus Hall.

1858. *Actinocrinus turbinatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 587, pl. 11, fig. 1.
Burlington L. S.: Burlington, Iowa.
1894. *Batocrinus laetus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 24, pl. 5, figs. 10-12.
Burlington Group: Sedalia, Missouri.
1897. *Batocrinus turbinatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 375, pl. 27, figs. 5a-c.
Lower Burlington L. S.: Louisiana, Missouri.

Batocrinus turbinatus var. *elegans* Hall.

1858. *Actinocrinus turbinatus* var. *elegans*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 588, pl. 11, fig. 5.
Burlington L. S.: Burlington, Iowa.
1894. *Batocrinus elegans*. Keyes, Mo. Geol. Surv., vol. 4, p. 180.
Lower Burlington L. S.: Sedalia and Louisiana, Missouri.
1897. *Batocrinus turbinatus* var. *elegans*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 376, pl. 27, figs. 6a, b.
Lower Burlington L. S.: Louisiana, Missouri.

Batocrinus unionensis. See *Dizygocrinus unionensis*.**Batocrinus variabilis** Miller and Gurley.

1896. *Batocrinus variabilis*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 58, pl. 4, figs. 13-17.
Burlington Group: Iowa, Missouri, Illinois.

Batocrinus venustulus Miller and Gurley.

1895. *Batocrinus venustulus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 12, pl. 1, fig. 7.
Keokuk Group: Boonville, Missouri.

Batocrinus venustus. See *Dizygocrinus euconus* var. *abscissus*.**Batocrinus verneuillianus**. See *Macrocrinus verneuillianus*.**Batocrinus veterator** Miller and Gurley.

1895. *Batocrinus veterator*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 8, pl. 1, fig. 4.
Keokuk Group: Boonville, Missouri.

Batocrinus vetustus Miller and Gurley.

1895. *Batocrinus vetustus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 10, pl. 1, figs. 5, 6.
Keokuk Group: Boonville, Missouri.

Batocrinus vicinus Miller and Gurley.

1895. *Batocrinus vicinus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 34, pl. 2, figs. 1-3.
Keokuk Group: Boonville, Missouri.

Batocrinus wetherbyi Miller and Gurley.

1895. *Batocrinus wetherbyi*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 11, pl. 1, figs. 11, 12.

Keokuk Group: White Creek Springs, Tennessee.

Batocrinus whitei. See *Dizygocrinus whitei*.**Batocrinus** (species undetermined.)

1896. *Batocrinus* (an abnormal specimen). Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 64, pl. 4, figs. 24, 25.

Burlington Group: Burlington, Iowa.

1896. *Batocrinus* (an abnormal specimen). Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 66; pl. 4, figs. 26, 27.

Burlington Group: Burlington, Iowa.

BATOSPONGIA Ulrich, 1890.**Batospongia spicata** Ulrich.

1890. *Batospongia spicata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 246, pl. 6, figs. 2-2b.
Base of Coal Measures: Seville, Illinois.

BATOSTOMELLA Ulrich, 1890.**Batostomella abrupta** Ulrich.

1890. *Batostomella abrupta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 435, pl. 75, figs. 2-2c.
Chester Group: Sloan's Valley, Pulaski County, Kentucky.

Batostomella interstincta Ulrich.

1890. *Batostomella interstincta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 434, pl. 75, figs. 4-4c.

St. Louis Group: Pella, Iowa.

Batostomella nitidula Ulrich.

1890. *Batostomella nitidula*. Ulrich, Geol. Surv. Ill., vol. 8, p. 436, pl. 75, figs. 3-3b.
Chester Group: Chester, Illinois; Sloan's Valley, Kentucky.

1894. *Batostomella nitidula*. Keyes, Mo., Geol. Surv., vol. 5, p. 14.
Chester Shales: Chester, Illinois; Ste. Genevieve, Missouri.

Batostomella spinulosa Ulrich.

1890. *Batostomella spinulosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 434, pl. 75, figs. 1-1c.

Chester Group: Sloan's Valley, Pulaski County, Kentucky; Chester, Illinois.

BEECHERIA Hall, 1893.**Beecheria davidsoni** Hall and Clarke.

1894. *Beecheria Davidsoni*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 53, figs. 1-3.

Carboniferous L. S.: Windsor, Nova Scotia.

1895. *Beecheria Davidsoni*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 79, figs. 33-36.

Carboniferous L. S.: Windsor, Nova Scotia.

1897. *Beecheria Davidsoni*. Hall, 14th Rep. N. Y. State Geol., p. 372, pl. 14, figs. 7-11.

Carboniferous L. S.: Windsor, Nova Scotia.

BELEMNOCRINUS White, 1862.**Belemnocrinus florifer** Wachsmuth and Springer.

1877. *Belemnocrinus florifer*. Wachsmuth and Springer, Am. Jour. Sci. (3), vol. 13, p. 256.

Upper Burlington L. S.: Burlington, Iowa.

Belemnocrinus portalesi Wachsmuth and Springer.

1877. *Belemnocrinus Portalesi*. Wachsmuth and Springer, Am. Jour. Sci. (3), vol. 13, p. 258.

Lower Burlington L. S.: Burlington, Iowa.

Belemnocrinus sampsoni Miller.

1891. *Belemnocrinus Sampsoni*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 26, pl. 3, fig. 8.

Burlington Group: Sedalia, Missouri.

1894. *Belemnocrinus? sampsoni*. Keyes, Mo. Geol. Surv., vol. 4, p. 207, pl. 25, fig. 9.

Lower Burlington L. S.: Sedalia, Missouri.

Belemnocrinus typus White.

1862. *Belemnocrinus typus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 14, figs. 1, 2, p. 13.

Upper Burlington L. S.: Burlington, Iowa.

Belemnocrinus whitii Meek and Worthen.

1866. *Belemnocrinus Whitii*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 251.

Lower Burlington L. S.: Burlington, Iowa.

1868. *Belemnocrinus Whitii*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 463, pl. 18, figs. 4a-c.

Burlington L. S.: Burlington, Iowa.

BELEMNOSPONGIA Ulrich, 1890.**Belemnospongia fascicularis** Ulrich.

1890. *Belemnospongia fascicularis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 248, pl. 3, figs. 2-2b.

Burlington L. S.: Burlington, Iowa; Montezuma, Illinois.

BELINURUS Konig, 1825.**Belinurus danae**. See *Prestwichia danae*.**Belinurus lacoei** Packard.

1885. *Belinurus lacoei*. Packard, Am. Nat., vol. 19, p. 292.

Carboniferous: Mazon Creek, Illinois.

1886. *Belinurus lacoei*. Packard, Mem. Nat. Acad. Sci., vol. 3, pt. 2, p. 149, pl. 5, fig. 5.

Carboniferous: Mazon Creek, Illinois.

1889. *Belinurus lacoei*. Packard, Proc. Bost. Soc. Nat. Hist., vol. 24, p. 211.

Coal Measures: Mazon Creek, Illinois.

BELLEROPHON Montfort, 1808.**Bellerophon alternodosus** Whitfield.

1882. *Bellerophon alternodosus*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 225.

Maxville L. S.: Newtonville, Ohio.

1891. *Bellerophon alternodosus*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 593, pl. 14, figs. 17-19.

Maxville L. S.: Newtonville, Ohio.

1895. *Bellerophon alternodosus*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 479, pl. 10, figs. 17-19.

Maxville L. S.: Newtonville, Ohio.

Bellerophon barquensis Winchell.

1862. *Bellerophon Barquensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 427.

Marshall Group: Pt. aux Barques, Michigan.

Bellerophon bellus Keyes.

1894. *Bellerophon bellus*. Keyes, Mo. Geol. Surv., vol. 5, p. 148, pl. 50, fig. 7.
Upper Coal Measures: Kansas City, Missouri.

Bellerophon bilabiatus White and Whitfield.

1862. *Bellerophon bilabiatu*s. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 304.
Chemung Group: Burlington, Iowa.
1889. *Bellerophon bilabiatu*s. Keyes, Proc. Acad. Nat. Sci. Phil., p. 297.
Kinderhook Group: Burlington, Iowa.
1894. *Bellerophon bilabiatu*s. Keyes, Mo. Geol. Surv., vol. 5, p. 147, pl. 50, fig. 3.
Kinderhook Group: Chouteau Springs, Missouri.
Burlington L. S.: Louisiana, Missouri.

Bellerophon blairi Miller and Gurley.

1896. *Bellerophon blairi*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 21, pl. 3, figs. 7, 8.
Chouteau L. S.: Sedalia, Missouri.

Bellerophon blaneyanus McChesney. See *Bellerophon carbonarius*.**Bellerophon branneri** Weller.

1897. *Bellerophon branneri*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 269, pl. 20, fig. 9.
Batesville S. S.: Batesville, Arkansas.

Bellerophon cancellatus Hall. See *Bellerophon textilis*.**Bellerophon carbonarius** Cox.

1855. *Bellerophon Urie*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 75, pl. 9, figs. 6a-c. (Not *B. urii*, Fleming, 1828.)
Coal Measures: Galatia and Grayville, Illinois; and 5 miles below New Harmony, Indiana.
1857. *Bellerophon carbonarius*. Cox, Geol. Surv. Ky., vol. 3, p. 562.
Coal Measures: Kentucky.
1860. *Bellerophon rittatus*. McChesney, Desc. New Pal. Foss., p. 59.
Coal Measures: Mouth of Rush Creek, Indiana; Graysville, Illinois.
1860. *Bellerophon blaneyanus*. McChesney, Desc. New Pal. Foss., p. 60.
Coal Measures: Saline and Peoria counties, and Danville and Graysville, Illinois.
1865. *Bellerophon blaneyanus*. McChesney, Ill., New Spec. Foss., pl. 2, figs. 5a-c.
1866. *Bellerophon carbonarius*. Geinitz, Carb. und Dyas in Nebr., p. 6, tab. 1, fig. 8.
Upper Carboniferous: Nebraska City, Nebraska.
1868. *Bellerophon Blaneyanus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 45, pl. 2, figs. 5a-c.
Coal Measures: Saline and Peoria counties, Illinois; Danville and Graysville, Illinois.
1872. *Bellerophon carbonarius*. Meek, U. S. Geol. Surv. Nebr., p. 224, pl. 4, fig. 16, pl. 11, figs. 11a-c.
Upper Coal Measures: Nebraska City, Nebraska.
Coal Measures: Iowa, Kansas, Missouri, Illinois, Kentucky, and Indiana.
Lower Coal Measures: West Virginia.
1884. *Bellerophon carbonarius*. White, 13th Rep. Geol. Surv. Ind., p. 158, pl. 33, figs. 6-8.
Coal Measures: Indiana.
1887. *Bellerophon carbonarius*. Herrick, Bull. Den. Univ., vol. 2, p. 19, pl. 2, fig. 20.
Coal Measures: Flint Ridge, Ohio.

Bellerophon carbonarius Cox—Continued.

1888. *Bellerophon urii*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 235.
Lower Coal Measures: Des Moines, Iowa.
1891. *Bellerophon urii*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 255.
Lower Coal Measures: Des Moines, Iowa.
1894. *Bellerophon urii*. Keyes, Mo. Geol. Surv., vol. 5, p. 149, pl. 50, figs. 5a-c.
Upper Coal Measures: Kansas City, Mo.
1897. *Bellerophon carbonarius*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 39.
Lower Coal Measures: Conway County, Arkansas.

Bellerophon carbonarius var. *subpapillosus* White. See *Bellerophon subpapillosus*.

Bellerophon crassus Meek and Worthen.

1860. *Bellerophon crassus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 458.
Lower Coal Measures: Pittsburg, St. Clair County, Illinois.
1866. *Bellerophon crassus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 385,
pl. 31, figs. 16a, b.
Lower Coal Measures: Pittsburg, St. Clair County, Illinois.
1877. *Bellerophon crassus*. White, U. S. Geol. Surv. W. 100 Merid., vol. 4, p. 157,
pl. 12, fig. 1a.
Carboniferous: Camp Cottonwood, near Spring Mountain, Nevada.
1884. *Bellerophon crassus*. White, 13th Rep. Geol. Surv. Ind., p. 157, pl. 33,
figs. 1, 2.
Upper Coal Measures: Sullivan and Posey counties, Indiana.
1886. *Bellerophon crassus* (var.)? Heilprin, 2d Geol. Surv. Penn., Ann. Rep.
1885, p. 457.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Bellerophon crassus* (var.)? Heilprin, Proc. and Coll. Wyo. Hist. and Geol.
Soc., vol. 2, pt. 2, p. 277.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Bellerophon* (cf. *crassus*). Herrick, Bull. Den. Univ., vol. 2, p. 20, pl. 5, fig. 6.
Coal Measures: Flint Ridge, Ohio.
1891. *Bellerophon crassus*. White, Bull. U. S. Geol. Surv., No. 77, p. 26.
Permian: Military Crossing, Baylor County, Texas.
1894. *Bellerophon crassus*. Keyes, Mo. Geol. Surv., vol. 5, p. 151, pl. 50, figs. 1a, b.
Upper Coal Measures: Kansas City and Lexington, Missouri.
1897. *Bellerophon crassus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 39.
Lower Coal Measures: Conway County, Arkansas.

Bellerophon cyrtolites Hall.

1860. *Bellerophon cyrtolites*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 107.
Goniatite L. S.: Rockford, Indiana.
1862. *Bellerophon cyrtolites*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 426.
Marshall Group: Moscow, Michigan.
1863. *Bellerophon cyrtolites*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 18.
Yellow S. S.: Burlington, Iowa.
1865. *Bellerophon cyrtolites*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 131.
Marshall Group: Hillsdale, Michigan.
1866. *Bellerophon cyrtolites*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 160,
pl. 14, figs. 8a, b.
Goniatite Bed: Rockford, Indiana.
1870. *Bellerophon cyrtolites*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 257.
Waverly Group: Granville, Ohio.
1888. *Bellerophon cyrtolites*. Herrick, Bull. Den. Univ., vol. 3, p. 88, pl. 2, figs.
27, 29; pl. 8, figs. 20, 21; pl. 9, figs. 29, 31.
Waverly Group: Licking County, Ohio.

Bellerophon decussatus Herrick.

1887. *Bellerophon decussatus*?? Herrick, Bull. Den. Univ., vol. 2, p. 18, pl. 2, fig. 12.
Coal Measures: Flint Ridge, Ohio.

Bellerophon ellipticus McChesney.

1866. *Bellerophon ellipticus*. McChesney, Desc. New Pal. Foss., p. 58.
Coal Measures: Dr. E. Hall's Mill, Pope Creek, Knox County; Carnahan's Mine, Mercer County, and Mr. Fisher's Mine, near Lacon, Illinois.
1865. *Bellerophon ellipticus*. McChesney, Ill., New Spec. Foss., pl. 3, figs. 1-2.
1868. *Bellerophon ellipticus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 44, pl. 3, figs. 1, 2.
Coal Measures: Knox County, Mercer County, and Lacon, Illinois.

Bellerophon galericulatus Winchell.

1862. *Bellerophon galericulatus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 426.
Marshall Group: Marshall, Battle Creek, etc., Michigan.
1888. *Bellerophon galericulatus*. Herrick, Bull. Den. Univ., vol. 3, p. 89, pl. 2, fig. 34; pl. 9, fig. 32.
Waverly Group: Licking County, Ohio.

Bellerophon gibsoni White.

1882. *Bellerophon gibsoni*. White, 11th Ann. Rep. Geol. Surv. Ind., p. 360, pl. 41, figs. 4-6.
St. Louis Group: Greencastle, Indiana.

Bellerophon giganteus Worthen.

1884. *Bellerophon giganteus*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 8.
Lower Coal Measures: Monroe County, Illinois.
1890. *Bellerophon giganteus*. Worthen, Geol. Surv. Ill., vol. 8, p. 143, pl. 25, figs. 5, 5a.
Lower Coal Measures: Monroe County, Illinois.

Bellerophon globosus Stevens.

1858. *Bellerophon globosa*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 258.
Coal Measures: Lasalle, Illinois.

Bellerophon harrodi Gurley.

1883. *Bellerophon Harrodi*. Gurley, New Carb. Foss. Bull. No. 1, p. 5.
Upper Coal Measures: Near Oakwood, Vermilion County, Illinois.

Bellerophon helena Hall.

1879. *Bellerophon Helena*. Hall, Pal. N. Y., vol. 5, pt. 2, p. 114, pl. 24, fig. 11.
Hamilton Group: Cayuga and Canandaigua lakes, New York.
1888. *Bellerophon helena*? Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 11.
Bedford Shale: Central College, Ohio.
1889. *Bellerophon newberryi*. Am. Geol., vol. 3, pl. 4, fig. 11.
Bedford Shale: Ohio.
1895. *Bellerophon helena*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 11.
Shale above Berea Grit: Ohio.

Bellerophon hiuleus Owen.

1852. *Bellerophon hiuleus*? Owen, Geol. Rep. Wis., Iowa, and Minn., tab. 5, fig. 8.
Lower Carboniferous L. S.: Keokuk rapids of Mississippi River.

Bellerophon incomptus Gurley.

1884. *Bellerophon incomptus*. Gurley, New Carb. Foss. Bull. No. 2, p. 9.
Coal Measures: Danville, Illinois.

Bellerophon inspeciosus White.

1881. *Bellerophon inspeciosus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 3, Supp. Appendix, p. xxx, pl. 4, figs. 1a-d.
Carboniferous: Near Taos and at Taos Peak, New Mexico.

Bellerophon interlineatus Geinitz. See *Bellerophon montfortianus*.
Bellerophon kansasensis Shumard.

1858. *Bellerophon Kansasensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 204.

Upper Coal Measures: Valley of the Verdigris, Kansas.

Bellerophon lineolatus Hall.

1860. *Bellerophon lineolatus*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 107. Goniatite L. S.: Rockford, Indiana.

1862. *Bellerophon lineolatus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 427. Marshall Group: Holland, Michigan.

Bellerophon majusculus Walcott.

1884. *Bellerophon majusculus*. Walcott, Pal. Eureka Dist., p. 256, pl. 23, figs. 1, 1a; pl. 24, fig. 6.

Lower Carboniferous: Eureka District, Nevada.

Bellerophon marcouanus Geinitz.

1866. *Bellerophon Marcouianus*. Geinitz, Carb. und Dyas in Nebr., p. 7, tab. 1, fig. 12.

Nebraska City, Nebraska.

1872. *Bellerophon Marcouianus*. Meek, U. S. Geol. Surv. Nebr., p. 226, pl. 4, fig. 17; pl. 11, figs. 13a, b.

Upper Coal Measures: Nebraska City, Nebraska; Union County, Iowa.

Coal Measures: Illinois.

Lower Coal Measures: West Virginia.

1887. *Bellerophon marcouianus*. Herrick, Bull. Den. Univ., vol. 2, p. 20, pl. 5, fig. 7. Coal Measures: Flint Ridge, Ohio.

1894. *Bellerophon marcouanus*. Keyes, Mo. Geol. Surv., vol. 5, p. 148, pl. 51, fig. 3.

Upper Coal Measures: Kansas City, Missouri.

1897. *Bellerophon marcouanus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 39.

Upper Coal Measures: Sebastian County, Arkansas.

Bellerophon meekianus Swallow.

1858. *Bellerophon meekianus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 204.

Middle Coal Measures: Lexington, Missouri.

Lower Coal Measures: Howard County, Missouri.

1894. *Bellerophon meekianus*. Keyes, Mo. Geol. Surv., vol. 5, p. 149.

Lower Coal Measures: Howard County and Lexington, Missouri.

Bellerophon michiganensis Winchell.

1862. *Bellerophon Michiganensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 427.

Marshall Group: Battle Creek, and near Grandville, Mich.

Bellerophon missouriensis Swallow.

1863. *Bellerophon Missouriensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 100.

Archimedes L. S.: Chester, Illinois.

Bellerophon montfortianus Norwood and Pratten.

1855. *Bellerophon Montfortianus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 74, pl. 9, figs. 5a-c.

Coal Measures: Galatia, Illinois, and 5 miles below New Harmony, Indiana.

1866. *Bellerophon Montfortianus*. Geinitz, Carb. und Dyas in Nebr., p. 8, Tab. 1, fig. 13.

Coal Measures: Nebraska City, Nebraska.

1866. *Bellerophon interlineatus*. Geinitz, Carb. und Dyas in Nebr., p. 8, tab. 1, fig. 14.

Nebraska City, Nebraska.

Bellerophon montfortianus Norwood and Pratten—Continued.

1872. *Bellerophon Montfortianus*. Meek, U. S. Geol. Surv. Nebr., p. 225, pl. 11, figs. 15 (12 f).
 Upper Coal Measures: Nebraska City, Nebraska.
 Coal Measures: Nebraska, Kansas, Iowa, Missouri, and Illinois.
 Lower Coal Measures: West Virginia.
1876. *Bellerophon Montfortianus*. White, Powell's Rep. Geol. Uinta Mts., p. 92.
 Upper Aubrey Group: Confluence of Grand and Green rivers, Utah.
1887. *Bellerophon Montfortianus*. Herrick, Bull. Den. Univ., vol. 2, p. 19, pl. 2, fig. 1; pl. 5, fig. 8.
 Coal Measures: Flint Ridge, Ohio.
1888. *Bellerophon montfortianus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 235.
 Lower Coal Measures: Des Moines, Iowa.
1891. *Bellerophon montfortianus*. White, Bull. U. S. Geol. Surv., No. 77, p. 26, pl. 3, figs. 15, 16.
 Permian: Godwin Creek, Baylor County, Texas.
1891. *Bellerophon montfortianus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 254.
 Lower Coal Measures: Des Moines, Iowa.
1894. *Bellerophon montfortianus*. Keyes, Mo. Geol. Surv., vol. 5, p. 151.
 Upper Coal Measures: Kansas City, Missouri.

Bellerophon nautiloides Winchell.

1862. *Bellerophon nautiloides*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 427.
 Marshall Group: Moscow, Battle Creek, Marshall, and near Grandville, Michigan.
1865. *Bellerophon nautiloides*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 131.
 Marshall Group: Hillsdale, Michigan.
1886. *Bellerophon nautiloides*. Claypole, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 246.
 Lower Coal Measures: Wilkesbarre, Pennsylvania.

Bellerophon newberryi. See *Bellerophon helena*.**Bellerophon nodocarinatus** Hall.

1858. *Bellerophon nodocarinatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 723, pl. 29, figs. 15a-c.
 Coal Measures: Illinois and Iowa.
1884. *Bellerophon nodocarinatus*. White, 13th Rep. Geol. Surv. Ind., p. 159, pl. 33, figs. 3-5.
 Coal Measures: New Harmony, Indiana.
1886. *Bellerophon nodocarinatus*?. Heilprin, 2d Geol. Surv. Penn., Ann. Rep. 1885, p. 457, fig. 13.
 Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Bellerophon nodocarinatus*?. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 277, fig. 13.
 Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Bellerophon nodocarinatus*. Herrick, Bull. Den. Univ., vol. 2, p. 18, pl. 3, fig. 3.
 Coal Measures: Flint Ridge, Ohio.
1894. *Bellerophon nodocarinatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 152, pl. 50, figs. 4a-c.
 Upper Coal Measures: Kansas City, Missouri.

Bellerophon nodocostatus Gurley.

1894. *Bellerophon nodocostatus*. Gurley, New Carb. Foss., Bull. No. 2, p. 9.
 Upper Coal Measures: Near Oakwood, Vermilion County, Illinois.

Bellerophon ourayensis Gurley.

1884. *Bellerophon Ourayensis*. Gurley, New Carb. Foss., Bull. No. 2, p. 8.
 Upper Carboniferous: Ouray, Colorado.

Bellerophon panneus White.

1862. *Bellerophon panneus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 21.
Chemung Group: Burlington, Iowa.
1889. *Bellerophon panneus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 287.
Kinderhook Group: Burlington, Iowa.
1894. *Bellerophon panneus*. Keyes, Mo. Geol. Surv., vol. 5, p. 147, pl. 50, fig. 6.
Kinderhook Group: Burlington, Iowa.

Bellerophon percarinatus Conrad.

- *1842. *Bellerophon percarinatus*. Conrad, Jour. Acad. Nat. Sci. Phil. (1), vol. 8, p. 268.
Coal Measures.
1855. *Bellerophon percarinatus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 74, pl. 9, figs. 4a-c.
Coal Measures: Grayville, Illinois; Posey County, Indiana, 5 miles below New Harmony.
1872. *Bellerophon percarinatus*. Meek, U. S. Geol. Surv. Nebr., p. 227, pl. 11, fig. 14.
Upper Coal Measures: Nebraska City and Brownville, Nebraska; Grayville, Illinois; Illinois, Iowa, Missouri.
Lower Coal Measures: West Virginia.
1884. *Bellerophon percarinatus*. White, 13th Rep. Geol. Surv. Ind., p. 158, pl. 33, figs. 9-14.
Coal Measures: Indiana.
1886. *Bellerophon percarinatus*. Claypole, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 246.
Lower Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Bellerophon percarinatus*. Herrick, Bull. Den. Univ., vol. 2, p. 17, pl. 2, fig. 14.
Coal Measures: Flint Ridge, Ohio.
1888. *Bellerophon percarinatus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 234.
Lower Coal Measures: Des Moines, Iowa.
1894. *Bellerophon percarinatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 153, pl. 50, figs. 2a-f.
Upper Coal Measures: Kansas City, Missouri.

Bellerophon perelegans White and Whitfield.

1862. *Bellerophon perelegans*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 304.
Chemung Group: Burlington, Iowa.
1888. *Bellerophon perelegans?* Herrick, Bull. Den. Univ., vol. 3, p. 90, pl. 9, fig. 30.
Waverly Group: Licking County, Ohio.

Bellerophon perlatus Conrad.

- *1842. *Bellerophon perlatus*. Conrad, Jour. Acad. Nat. Sci. Phil. (1), vol. 8, p. 270.
Carboniferous: Inclined plane of Allegany Mountains.

Bellerophon rugopleurus Gurley.

1884. *Bellerophon rugopleurus*. Gurley, New Carb. Foss. Bull. No. 2, p. 11.
Upper Coal Measures: Near Oakwood, Vermilion County, Illinois.

Bellerophon rugosiusculus Winchell.

1862. *Bellerophon rugosiusculus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 425.
Marshall Group: Marshall, Michigan.

Bellerophon rugosiusculus var. tæniatus Winchell.

1862. *Bellerophon rugosiusculus* var. *tæniatus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 425.
Marshall Group: Moscow, Michigan.

Bellerophon scriptiferus White.

1862. *Bellerophon scriptiferus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 21.
Chemung Group: Burlington, Iowa.

Bellerophon scissile Conrad.

1844. *Bellerophon scissile*. Conrad, Proc. Acad. Nat. Sci. Phil., p. 175.
St. Genevieve.

Bellerophon sedaliensis Miller and Gurley.

1896. *Bellerophon sedaliensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 21, pl. 3, figs. 9, 10.
Chouteau L. S.: Near Sedalia, Missouri.

Bellerophon stamineus Conrad.

- *1842. *Bellerophon stamineus*. Conrad, Jour. Acad. Nat. Sci. Phil. (1), vol. 8, p. 269.
Marshall Group.

Bellerophon stevensanus McChesney.

1860. *Bellerophon stevensianus*. McChesney, Desc. New Pal. Foss., p. 61.
Coal Measures: Springfield, Illinois.
1865. *Bellerophon stevensianus*. McChesney, Ill. New Spec. Foss., pl. 2, figs. 18a-c.
1868. *Bellerophon stevensianus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 46,
pl. 2, figs. 18a-c.
Coal Measures: Springfield, Illinois.
1894. *Bellerophon stevensianus*. Keyes, Mo. Geol. Surv., vol. 5, p. 152.
Upper Coal Measures: Kansas City, Missouri.

Bellerophon subcordiformis Herrick.

1887. *Bellerophon subcordiformis*. Herrick, Bull. Den. Univ., vol. 2, p. 18, pl. 2,
figs. 7a-c.
Coal Measures: Flint Ridge, Ohio.

Bellerophon sublaevis Hall.

1856. *Bellerophon sublaevis*. Hall, Trans. Albany Inst., vol. 4, p. 32.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana; Alton, Illinois.
1858. *Bellerophon sublaevis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 666, pl. 23, figs. 15a-c.
Warsaw L. S.: Above Alton, Illinois; Spergen Hill and Bloomington,
Indiana.
1882. *Bellerophon sublaevis*. White, 11th Rep. Geol. Surv. Ind., p. 359, pl. 40,
figs. 5-7.
St. Louis Group: Ellettsville, Monroe County, Indiana.
1882. *Bellerophon sublaevis*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 89,
pl. 8, figs. 6-7.
St. Louis Group: Spergen Hill, Bloomington, Payners Hill, and Elletts-
ville, Indiana; Alton, Illinois.
1883. *Bellerophon sublaevis*. Hall, 12th Rep. Geol. Surv. Ind., p. 371, pl. 31,
figs. 6-7.
St. Louis Group: Alton, Illinois; Spergen Hill, Lanesville, and Blooming-
ton, Indiana.
1886. *Bellerophon sublaevis*. Claypole, Proc. and Coll. Wyo. Hist. and Geol. Soc.,
vol. 2, pt. 2, p. 246.
Lower Coal Measures: Wilkesbarre, Pennsylvania.
1891. *Bellerophon sublaevis?* Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 592, pl. 14,
figs. 20, 21.
Maxville L. S.: Newtonville and Maxville, Ohio.
1894. *Bellerophon sublaevis*. Keyes, Mo. Geol. Surv., vol. 5, p. 148.
St. Louis L. S.: St. Louis, Missouri.
1895. *Bellerophon sublaevis?* Whitfield, Geol. Surv. Ohio, vol. 7, p. 479, pl. 10,
figs. 20, 21.
Maxville L. S.: Newtonville and Maxville, Ohio.
1897. *Bellerophon sublaevis*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 269, pl. 20,
fig. 10.
Batesville S. S.: Batesville, Arkansas.

Bellerophon subpapillosum White.

1876. *Bellerophon carbonarius* var. *subpapillosum*. White, Powell's Rep. Geol. Uinta Mts., p. 92.
Upper Aubrey Group: Beehive Point, near Echo Canyon, and near Echo Park, Utah.
1879. *Bellerophon subpapillosum*. White, Bull. U. S. Geol. and Geog. Surv. Terr., vol. 5, p. 218.
Carboniferous: Wild Band Pockets, Northern Arizona, 15 miles south of Pipe Spring.
1880. *Bellerophon subpapillosum*. White, Cont. to Inv. Pal., No. 6, p. 138, pl. 34, fig. 3a.
Upper Carboniferous: Northwestern Colorado and Northern Arizona.

Bellerophon tenuilineatus Gurley.

1884. *Bellerophon tenuilineatus*. Gurley, New Carb. Foss. Bull. No. 2, p. 10.
Upper Coal Measures: Near Oakwood, Vermilion County, Illinois.

Bellerophon textiliformis Gurley.

1883. *Bellerophon textiliformis*. Gurley, New Carb. Foss. Bull. No. 1, p. 6.
Upper Coal Measures: Kansas City, Missouri.

Bellerophon textilis Hall.

1856. *Bellerophon cancellatus*. Hall, Trans. Albany Inst., vol. 4, p. 31. (Not *B. cancellatus* Hall, 1847.)
St. Louis L. S.: Bloomington and Spergen Hill, Indiana.
1877. *Bellerophon textilis*. Hall, Miller's Am. Pal. Foss., p. 243.
1882. *Bellerophon textilis*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 90, pl. 8, figs. 4, 5.
St. Louis Group: Spergen Hill and Bloomington, Indiana.
1883. *Bellerophon textilis*. Hall, 12th Rep. Geol. Surv. Ind., p. 371, pl. 31, figs. 4, 5.
St. Louis Group: Spergen Hill, Lanesville and Bloomington, Indiana.
1884. *Bellerophon textilis*? Walcott, Pal. Eureka Dist., p. 257, pl. 18, fig. 18.
Lower Carboniferous: Eureka District, Nevada.

Bellerophon tricarinatus Shumard.

1858. *Bellerophon tricarinatus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 204.
Upper Coal Measures: Kansas.

Bellerophon urii Norwood and Pratten. See Bellerophon carbonarius.**Bellerophon vinculatus White and Whitfield.**

1862. *Bellerophon vinculatus*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 304.
Chemung Group: Burlington, Iowa.

Bellerophon vittatus McChesney. See Bellerophon carbonarius.**Bellerophon whittleseyi Winchell.**

1865. *Bellerophon Whittleseyi*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 130.
Marshall Group: One mile east of Orange Center, Cuyahoga County, Ohio.

Bellerophon (species undetermined).

1859. *Bellerophon*, sp. (?) Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 399.
Dark Permian L. S.: Guadalupe Mountains.
1861. *Bellerophon*. Newberry, Ives', Colo. Expl. Exped., p. 118.
Carboniferous: Agua Azul, near base of Mount Taylor.
1868. *Bellerophon*. Dawson, Acad. Geol., p. 308.
Carboniferous L. S.: Kennetcook, Nova Scotia.
1873. *Bellerophon* (sp. undet.). Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 23, fig. 2.
St. Louis Group.

Bellerophon (species undetermined)—Continued.

1876. *Bellerophon* — (?) —. White, Powell's Rep. Geol. Uinta Mts., p. 91.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1888. *Bellerophon* sp? Herrick, Bull. Den. Univ., vol. 3, p. 90, pl. 12, fig. 36.
Waverly Group: Licking County, Ohio.
1888. *Bellerophon* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 2, fig. 30.
Waverly Group: Licking County, Ohio.
1888. *Bellerophon* sp? Herrick, Bull. Den. Univ., vol. 3, pl. 8, fig. 22.
Waverly Group: Licking County, Ohio.
1891. *Bellerophon* — ? White, Bull. U. S. Geol. Surv., No. 77, p. 26.
Permian: Military Crossing, Baylor County, Texas.
1897. *Bellerophon* sp. Smith, Proc. Am. Phil. Soc., vol. 35, p. 39.
Lower Coal Measures: White County, Arkansas.

BERENICEA Lamoureaux, 1821.**Berenicea insueta Dawson.**

1883. *Berenicea insueta*. Dawson, Rep. Peter Redpath Mus., No. 2, p. 12.
Lower Carboniferous L. S.: Windsor, Nova Scotia.

Berenicea (species undetermined).

1868. *Berenicea*, two species. Dawson, Acad. Geol., p. 289.
Carboniferous L. S.: Windsor, Nova Scotia.

BEYRICHIA McCoy, 1844.**Beyrichia foetoidea White and St. John.**

1868. *Beyrichia foetoidea*. White and St. John, Trans. Chicago Acad. Sci., vol. 1,
p. 126, figs. 11a, b.
Upper Coal Measures: Union and Page counties, Illinois.

Beyrichia jonesii Dawson.

1868. *Beyrichia Jonesii*. Dawson, Acad. Geol., p. 312, fig. 132.
Carboniferous L. S.: Windsor, Nova Scotia.

Beyrichia lithofactor White and St. John.

- *1867. *Beyrichia lithofactor*. White and St. John, Prelim. Not. New Gen. and Spec.
Foss., p. 2.
St. Louis L. S.: Pella, Iowa.
1868. *Beyrichia petrifactor*. White and St. John, Trans. Chicago Acad. Sci., vol. 1,
p. 125.
St. Louis L. S.: Pella, Iowa.

Beyrichia lithofactor var. velata White and St. John.

1867. *Beyrichia lithofactor* var. *velata*. White and St. John, Prelim. Not. New
Gen. and Spec. Foss., p. 2.
St. Louis L. S.: Pella, Iowa.
1868. *Beyrichia petrifactor* var. *velata*. White and St. John, Trans. Chicago Acad.
Sci., vol. 1, p. 126.
St. Louis L. S.: Pella, Iowa.

Beyrichia novascotica Jones and Kirkby.

1868. *Beyrichia* sp. Dawson Acad. Geol., p. 256, fig. 78c.
Carboniferous: Horton Bluff, Nova Scotia.
1884. *Beyrichia Nova-scotica*. Jones and Kirkby, Geol. Mag. (3), vol. 1, p. 358,
pl. 12, figs. 5, 6.

Beyrichia petrifactor White and St. John. See *Beyrichia lithofactor*.

Beyrichia petrifactor var. *velata* White and St. John. See *Beyrichia lithofactor* var. *velata*.

Beyrichia radiata var. *cestriensis* Ulrich.

1891. *Beyrichia radiata* var. *cestriensis*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 204, pl. 14, figs. 4a, b.

Chester Group: Grayson Springs, Kentucky.

Boyrichia simulatrix Ulrich.

1891. *Boyrichia simulatrix*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 205, pl. 18, figs. 7a, b.

Chester Group: Grayson Springs, Kentucky.

Beyrichia or **Primitia**, sp. Jones and Kirkby.

1884. *Beyrichia* or *Primitia*? sp. Jones and Kirkby, Geol. Mag. (3), vol. 1, p. 358, pl. 12, fig. 7.

Lower Coal Measures: Horton, Nova Scotia.

BIOPALLA Wallace, 1878.**Biopalla alicei** Wallace.

1878. *Biopalla Alicei*. Wallace, Am. Jour. Sci. (3), vol. 15, p. 370.

Keokuk L. S. (Geode Bed): Keokuk, Iowa.

Biopalla grandis Wallace.

1878. *Biopalla grandis*. Wallace, Am. Jour. Sci. (3), vol. 15, p. 369.

Keokuk L. S. (Geode Bed): Keokuk, Iowa; Clark County, Missouri.

Biopalla haeckeli Wallace.

1878. *Biopalla Haeckeli*. Wallace, Am. Jour. Sci. (3), vol. 15, p. 370.

Keokuk L. S. (Geode Bed): Keokuk, Iowa; Canton, Missouri.

Biopalla hyatti Wallace.

1878. *Biopalla Hyatti*. Wallace, Am. Jour. Sci. (3), vol. 15, p. 370.

Keokuk L. S. (Geode Bed): Keokuk, Iowa; Hamilton, Illinois.

Biopalla keokuk Wallace.

1878. *Biopalla Keokuk*. Wallace, Am. Jour. Sci. (3), vol. 15, p. 369.

Keokuk L. S. (Geode Bed): Keokuk, Iowa; Hamilton, Illinois.

Biopalla palmata Wallace.

1878. *Biopalla palmata*. Wallace, Am. Jour. Sci. (3), vol. 15, p. 370.

Keokuk L. S. (Geode Bed): Keokuk, Iowa.

Biopalla woodmani Wallace.

1878. *Biopalla Woodmani*. Wallace, Am. Jour. Sci. (3), vol. 15, p. 369.

Keokuk L. S. (Geode Bed): Keokuk, Iowa.

Biopalla wortheni Wallace.

1878. *Biopalla Wortheni*. Wallace, Am. Jour. Sci. (3), vol. 15, p. 369.

Keokuk L. S. (Geode Bed): Hamilton, Illinois.

BLAIRELLA Miller and Gurley, 1896.**Blairiella sedaliensis** Miller and Gurley.

1896. *Blairiella sedaliensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 7, pl. 1, figs. 4-8.

Chouteau L. S.: Near Sedalia, Missouri.

BLAIROCRINUS Miller, 1891.

Blairocrinus arrosus. See *Actinocrinus arrosus*.

Blairocrinus bullatus. See *Actinocrinus arrosus*.

Blairocrinus spinulosus Miller and Gurley.

1894. *Blairocrinus spinulosus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 28, pl. 7, figs. 16-18.
Chouteau L. S.: Sedalia, Missouri.

Blairocrinus trijugis. See *Actinocrinus trijugis*.

(BLATTINA Burmeister, 1838.)

Blattina bretonensis Scudder. See *Mylacris bretonensis*.

Blattina fascigera Scudder. See *Gerablattina fascigera*.

Blattina heeri Scudder. See *Mylacris heeri*.

Blattina sepulta Scudder. See *Petrablattina sepulta*.

Blattina venusta Lesquereux. See *Etoablattina venusta*.

Blattina sp. Scudder.

1885. *Blattina* sp. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 142, pl. 10, fig. 16.
Lower Coal Measures: Mazon Creek, Illinois.

BOLLIA Jones and Hall, 1886.

Bollia granifera Ulrich.

1891. *Bollia granifera*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 205, pl. 12, figs. 12a, b.
St. Louis L. S.: Elizabethtown, Kentucky.

BRACHYMETOPUS McCoy, 1847.

Brachymetopus armatus Vogdes.

1891. *Brachymetopus armatus*. Vogdes, Trans. St. Louis Acad. Sci., vol. 5, p. 617, pl. 15, figs. 4, 5.
Waverly Group: Sedalia, Missouri.

Brachymetopus immaturus Herrick.

1888. *Phaethonides ? immaturus*. Herrick, Bull. Den. Univ., vol. 4, p. 59, pl. 1, figs. 9, 15.
Waverly Group: Newark and Cuyahoga Falls, Ohio.
1889. *Phaethonides immaturus*. Herrick, Am. Geol., vol. 3, pl. 1, figs. 9, 15.
1894. *Phillipsia ? immaturus*. Keyes, Mo. Geol. Surv., vol. 4, p. 238.
Lower Burlington L. S.: Louisiana, Missouri.
1895. *Phaethonides immaturus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 14, fig. 9.
Cuyahoga Shale: Cuyahoga Falls, Ohio.

Brachymetopus lodiensis Meek.

1875. *Phillipsia (Griffithides ?) lodiensis*. Meek, Pal. Ohio, vol. 2, p. 323, pl. 18, fig. 3.
Cuyahoga Shale: Lodi and Loudonville, Ohio.
1887. *Brachymetopsus lodiensis*. Herrick, Bull. Den. Univ., vol. 2, pl. 3, fig. 4.
1887. *Brachymetopsus lodiensis*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 102.
Cuyahoga Shale: Lodi, Medina County, Ohio.
Waverly Group: Loudonville, Ohio.
1888. *Phaethonides (?) lodiensis*. Herrick, Bull. Den. Univ., vol. 4, p. 59.
Waverly Group: Ohio.

Brachymetopus occidentalis Herrick.

1888. *Phaethonides occidentalis*. Herrick, Bull. Den. Univ., vol. 4, p. 57, pl. 1, figs. 10a, b.
Waverly Group: Granville and Newark, Ohio.

Brachymetopus occidentalis Herrick—Continued.

1889. *Phaethonides occidentalis*. Herrick, Am. Geol. vol. 3, pl. 1, fig. 10.
 1895. *Phaethonides occidentalis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 14, figs. 10, 11.
 Waverly Group (Conglomerate I): Granville, Ohio.

Brachymetopus spinosus Herrick.

1888. *Phaethonides spinosus*. Herrick, Bull. Den. Univ., vol. 4, p. 58, pl. 1, figs. 4, 5.
 Waverly Group: Licking and Ashland counties, Ohio.
 1889. *Phaethonides spinosus*. Herrick, Am. Geol., vol. 3, pl. 1, figs. 4, 5.
 1891. *Phaethonides spinosus*. Herrick, Bull. Geol. Soc. Am., vol. 2, p. 42, pl. 1, fig. 13.
 Cuyahoga Shale: Scioto County, Ohio.
 1895. *Phaethonides spinosus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 14, figs. 4, 5
 (16b, c)†
 Cuyahoga Shale: Licking and Ashland counties, Ohio.

BRANCOCERAS Hyatt, 1883.**Brancoceras ixion Hall.**

1860. *Goniatites rotatorius*?. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 101,
 figs. 15-16.
 Goniatite L. S.: Rockford, Indiana.
 1860. *Goniatites ixion*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 125, figs. 1, 2
 Goniatite L. S.: Rockford, Indiana.
 1879. *Goniatites ixion*. Hall, Pal. N. Y., vol. 5, pt. 2, p. 474, pl. 73, figs. 12-14; pl. 7
 fig. 12.
 Goniatite L. S.: Rockford, Indiana.
 1883. *Brancoceras Ixion*. Hyatt, Proc. Bost. Soc. Nat. Hist., vol. 22, p. 326.
 1886. *Goniatites Ixion*. Hall, 5th Ann. Rep. N. Y. State Geol., pl. (128) 13, fig. 3.
 Goniatite L. S.: Rockford, Indiana.
 1888. *Goniatites Ixion*. Beecher, Pal. N. Y., vol. 5, pt. 2, Supp., p. 40, pl. 128, fig. 3.
 Goniatite L. S.: Rockford, Indiana.
 1897. *Brancoceras Ixion*. Foord and Crick, Cat. Foss. Ceph., pt. 3, p. 141, fig. 62
 p. 132.
 Goniatite Limestone, Kinderhook Group: Rockford, Indiana.

(BULIMELLA Hall, 1858.)

Bulimella bulimiformis Hall. See *Bulimorpha bulimiformis*.

Bulimella canaliculata Hall. See *Bulimorpha canaliculata*.

Bulimella elongata Hall. See *Bulimorpha elongata*.

BULIMORPHA Whitfield, 1882.**Bulimorpha bulimiformis Hall.**

1856. *Bulimella bulimiformis*. Hall, Trans. Albany Inst., vol. 4, p. 29.
 St. Louis L. S.: Spergen Hill and Bloomington, Indiana.
 1882. *Bulimorpha bulimiformis*. Whitfield. Bull. Am. Mus. Nat. Hist., vol. 1,
 p. 74, pl. 8, figs. 37-39.
 St. Louis Group: Spergen Hill and Bloomington, Indiana.
 1883. *Bulimorpha bulimiformis*. Hall, 12th Rep. Geol. Surv. Ind., p. 366, pl. 31,
 figs. 37-39.
 St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.
 1889. *Bulimorpha bulimiformis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 300.
 1894. *Bulimorpha bulimiformis*. Keyes, Mo. Geol. Surv., vol. 5, p. 204.
 St. Louis L. S.: St. Louis, Missouri.

***Bulimorpha canaliculata* Hall.**

1856. *Bulimella canaliculata*. Hall, Trans. Albany Inst., vol. 4, p. 29.
St. Louis L. S.: Spergen Hill, Indiana.
1882. *Bulimorpha canaliculata*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1,
p. 74, pl. 8, fig. 41.
St. Louis Group: Spergen Hill, Indiana.
1883. *Bulimorpha canaliculata*. Hall, 12th Rep. Geol. Surv. Ind., p. 367, pl. 31,
fig. 41.
St. Louis Group: Spergen Hill and Lanesville, Indiana.
1889. *Bulimorpha canaliculata*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 300.

***Bulimorpha chrysalis* Meek and Worthen.**

1886. *Polyphemopsis chrysalis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 267.
Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1873. *Polyphemopsis chrysalis*. Meek and Worthen, Geol. Surv. Ill., vol. 5,
p. 596, pl. 28, fig. 7.
Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1889. *Bulimorpha chrysalis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 300.
1891. *Bulimorpha? chrysalis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 264.
Lower Coal Measures: Des Moines, Iowa.

***Bulimorpha elongata* Hall.**

1856. *Bulimella elongata*. Hall, Trans. Albany Inst., vol. 4, p. 30.
St. Louis L. S.: Spergen Hill, Indiana.
1882. *Bulimorpha elongata*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 75,
pl. 8, fig. 40.
St. Louis Group: Spergen Hill, Indiana.
1883. *Bulimorpha elongata*. Hall, 12th Rep. Geol. Surv. Ind., p. 368, pl. 31, fig. 40.
St. Louis Group: Spergen Hill and Lanesville, Indiana.
1889. *Bulimorpha elongata*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 301.

***Bulimorpha inornata* Meek and Worthen.**

1860. *Loxonema inornata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 465.
Upper Coal Measures: Springfield, Illinois.
1866. *Polyphemopsis inornata*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 374,
pl. 31, figs. 8a-c.
Upper Coal Measures: Springfield, Illinois.
1887. *Polyphemopsis inornata*. Herrick, Bull. Den. Univ., vol. 2, p. 20, pl. 2, fig. 15.
Coal Measures: Flint Ridge, Ohio.
1889. *Bulimorpha inornata*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 301.
1894. *Bulimorpha inornata*. Keyes, Mo. Geol. Surv., vol. 5, p. 205, pl. 55, fig. 6.
Upper Coal Measures: Kansas City, Missouri.
1897. *Polyphemopsis inornata*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 41.
Upper Coal Measures: Crawford County, Arkansas.

***Bulimorpha? keokuk* Worthen.**

1884. *Polyphemopsis? keokuk*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 9.
Lower Keokuk L. S.: Keokuk, Iowa.
1889. *Polyphemopsis keokuk*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 301.
1890. *Polyphemopsis? keokuk*. Worthen, Geol. Surv. Ill., vol. 8, p. 144, pl. 23, fig. 3.
Keokuk L. S.: Keokuk, Iowa.

***Bulimorpha melanoides* Whitfield.**

1882. *Polyphemopsis melanoides*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 225.
Maxville L. S.: Newtonville, Ohio.
1891. *Polyphemopsis melanoides*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 592,
pl. 14, fig. 13.
Maxville L. S.: Newtonville, Ohio.

Bulimorpha melanoides Whitfield—Continued.

1895. *Polyphemopsis melanoides*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 478, pl. 10, fig. 13.

Maxville L. S.: Newtonville, Ohio.

Bulimorpha minuta Stevens.

1858. *Loronema minuta*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 260.
Coal Measures: Sangamon County and Danville, Illinois.
1873. *Acteonina minuta*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 594, pl. 29, fig. 2.
Coal Measures: Danville, Illinois.
1888. *Acteonina minuta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 240.
Lower Coal Measures: Des Moines, Iowa.
1889. *Bulimorpha minuta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 301.
1891. *Bulimorpha minuta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 263.
Lower Coal Measures: Des Moines, Iowa.

Bulimorpha nitidula Meek and Worthen.

1860. *Loronema nitidula*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 465.
Upper Coal Measures: Springfield, Illinois.
1866. *Polyphemopsis nitidula*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 34, pl. 31, figs. 9a, b.
Upper Coal Measures: Springfield, Illinois.
1882. *Polyphemopsis nitidula*. White, 11th Rep. Geol. Surv. Ind., p. 370, pl. 4—2, figs. 7, 8.
Coal Measures: Eugene, Vermilion County, Indiana.
1884. *Polyphemopsis nitidula*. White, 13th Rep. Geol. Surv. Ind., p. 163, pl. 2—7, figs. 7, 8.
Coal Measures: Eugene, Vermilion County, Indiana.
1889. *Bulimorpha nitidula*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 302.

Bulimorpha? peracuta Meek and Worthen.

1860. *Eulima? peracuta*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 466.
Lower Coal Measures: Jacksburg, St. Clair County, Illinois.
Upper Coal Measures: Near Springfield, Illinois.
1861. *Polyphemopsis peracuta*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 148.
1866. *Polyphemopsis peracuta*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 375, pl. 31, figs. 7a, b.
Upper Coal Measures: Near Urbana, St. Clair County, and near Springfield, Illinois.
1884. *Polyphemopsis peracuta*. White, 13th Rep. Geol. Surv. Ind., p. 163, pl. 32, figs. 9, 10.
Coal Measures: Indiana (?).
1889. *Polyphemopsis peracuta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 302.
1894. *Eulima? peracuta*. Keyes, Mo. Geol. Surv., vol. 5, p. 205.
Upper Coal Measures: Sullivan County, Missouri.

BURSACRINUS Meek and Worthen, 1861.**Bursacrinus confirmatus** White.

1862. *Bursacrinus confirmatus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 11.
Lower Burlington L. S.: Burlington, Iowa.

Bursacrinus wachsmuthi Meek and Worthen.

1861. *Bursacrinus Wachsmuthi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 137.
Burlington L. S.: Burlington, Iowa.

Bursacrinus wachsmuthi Meek and Worthen—Continued.

1868. *Bursacrinus Wachsmuthi*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 479, pl. 17, fig. 6.
Burlington Group: Burlington, Iowa.

CACTOCRINUS Wachsmuth and Springer, 1897.**Cactocrinus arnoldi** Wachsmuth and Springer.

1890. *Actinocrinus arnoldi*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 168, pl. 17, fig. 10.
Kinderhook Group: Le Grand, Iowa.
1897. *Cactocrinus Arnoldi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 624, pl. 57, figs. 4a, b.
Kinderhook Group: Le Grand, Marshall County, Iowa.

Cactocrinus clarus Hall.

1861. *Actinocrinus clarus*. Hall, Desc. New Spec. Crin., p. 2.
Burlington L. S.
1861. *Actinocrinus clarus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 277.
Burlington L. S.: Burlington, Iowa.
1872. *Actinocrinus Clarus*. Hall, Photo. Plates of Crin., pl. 3, figs. 24, 25.
1893. *Actinocrinus clarus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 8, pl. 1, figs. 4, 5.
Burlington L. S.: Burlington, Iowa.
1897. *Cactocrinus clarus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 612, pl. 57, figs. 9, 10; pl. 58, fig. 1.
Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus coelatus Hall.

1858. *Actinocrinus coelatus*. Geol. Iowa, vol. 1, pt. 2, p. 585, pl. 10, fig. 14a, b.
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus coelatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 2, fig. 1.
1894. *Actinocrinus coelatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 187.
Lower Burlington L. S.: Hannibal and White Ledge, Missouri.
1897. *Cactocrinus coelatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 618, pl. 59, figs. 8, 9.
Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus coelatus var. *spinotentaculus* Hall.

1860. *Actinocrinus spino-tentaculus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 86.
Burlington L. S.: Burlington, Iowa.
1872. *Actinocrinus spinotentaculites*. Hall, Photo. Plates of Crinoids, pl. 3, figs. 13-17.
1897. *Cactocrinus coelatus* var. *spinotentaculus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 619, pl. 59, fig. 10.
Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus denticulatus Wachsmuth and Springer.

1897. *Cactocrinus denticulatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 606, pl. 57, figs. 5a, b.
Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus ectypus Meek and Worthen.

1869. *Strotocrinus ectypus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 159.
Lower Burlington L. S.: Burlington, Iowa.
1873. *Strotocrinus ectypus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 353, pl. 7, fig. 5.
Burlington L. S.: Burlington, Iowa.

Cactocrinus ectypus Meek and Worthen—Continued.

1897. *Cactocrinus ectypus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 611,
pl. 56, fig. 10.
Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus extensus Wachsmuth and Springer.

1897. *Cactocrinus extensus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 616,
pl. 57, figs. 6, 7.
Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus fossatus Miller.

1892. *Actinocrinus fossatus*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 40,
pl. 6, figs. 11, 12.
Burlington Group: Sedalia, Missouri.
1894. *Actinocrinus fossatus*. Miller, 18th Rep. Geol. Surv. Ind., p. 294, pl. 6,
figs. 11, 12.
Burlington Group: Sedalia, Missouri.
1894. *Actinocrinus fossatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 188.
Burlington L. S.: Sedalia, Missouri.
1897. *Cactocrinus fossatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 620,
pl. 55, fig. 12.
Lower Burlington L. S.: Sedalia, Missouri.

Cactocrinus glans Hall.

1860. *Actinocrinus glans*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 16.
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus tholus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 35.
Burlington L. S.: Burlington, Iowa.
1861. *Actinocrinus eryx*. Hall, Desc. New Spec. Crin., p. 12.
Burlington L. S.
1892. *Actinocrinus blairi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 35,
pl. 5, figs. 27-29.
Burlington Group: Sedalia, Missouri.
1893. *Actinocrinus glans*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 10, fig.
pl. 1, figs. 11, 12.
Upper Burlington L. S.: Burlington, Iowa.
1894. *Actinocrinus blairi*. Miller, 18th Rep. Geol. Surv. Ind., p. 289, pl. 5, figs.
27-29.
Burlington Group: Sedalia, Missouri.
1894. *Actinocrinus glans*. Keyes, Mo. Geol. Surv., vol. 4, p. 189, pl. 24, figs. 2a, b.
Upper Burlington L. S.: Ash Grove, Missouri.
1897. *Cactocrinus glans*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 625,
pl. 54, figs. 5, 6a-b, 7.
Upper Burlington L. S.: Burlington, Iowa.

Cactocrinus limabrachiatatus Hall.

1861. *Actinocrinus limabrachiatatus*. Hall, Desc. New Spec. Crin., p. 2.
Burlington L. S.
1861. *Actinocrinus limabrachiatatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 268.
Burlington L. S.: Burlington, Iowa.
1893. *Actinocrinus limabrachiatatus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1,
p. 5, pl. 1, figs. 8, 9.
Burlington L. S.: Burlington, Iowa.
1897. *Cactocrinus limabrachiatatus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 608, pl. 58, figs. 9, 10a-b.
Lower Burlington L. S.: Burlington, Iowa.

***Cactocrinus longus* Meek and Worthen.**

1890. *Actinocrinites longus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 157.

Lower Burlington L. S.: Burlington, Iowa.

1873. *Actinocrinites longus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 345, pl. 8, fig. 1.

Lower Burlington L. S.: Burlington, Iowa.

1897. *Cactocrinus longus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 609, pl. 57, fig. 8.

Lower Burlington L. S.: Burlington, Iowa.

***Cactocrinus lucina* Hall.**

1861. *Actinocrinus lucina*. Hall, Desc. New Spec. Crin., p. 11.

Burlington L. S.

1891. *Actinocrinus puteatus*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 101, pl. 2, fig. 16.

Lower Burlington L. S.: Louisiana, Missouri.

1897. *Cactocrinus lucina*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 603, pl. 56, figs. 8, 9.

Lower Burlington L. S.: Burlington, Iowa; Louisiana, Missouri.

***Cactocrinus multibrachiatus* Hall.**

1858. *Actinocrinus multibrachiatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 580, pl. 10, fig. 10.

Burlington L. S.: Burlington, Iowa.

1861. *Actinocrinus multibrachiatus* var. *echinatus*. Hall, Desc. New Spec. Crin., p. 10.

Burlington L. S.

1897. *Cactocrinus multibrachiatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 617, pl. 56, figs. 6, 7, pl. 58, fig. 8.

Lower Burlington L. S.: Burlington, Iowa.

***Cactocrinus nodobrachiatus* Wachsmuth and Springer.**

1890. *Actinocrinus nodobrachiatus*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 165, pl. 15, fig. 5; pl. 16, fig. 10.

Kinderhook Group: Legrand, Iowa.

1897. *Cactocrinus nodobrachiatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 622, pl. 57, figs. 1, 2.

Kinderhook Group: Legrand, Marshall County, Iowa.

***Cactocrinus obesus* Keyes.**

1894. *Actinocrinus obesus*. Keyes, Mo. Geol. Surv., vol. 4, p. 187, pl. 24, fig. 4.

Burlington L. S.: Hannibal, Missouri.

1897. *Cactocrinus obesus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 613, pl. 55, figs. 9a, b.

Lower Burlington L. S.: Hannibal, Missouri.

***Cactocrinus opusculus* Hall.**

1860. *Actinocrinus opusculus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 2, fig. 6.

1861. *Actinocrinus opusculus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 264.

Burlington L. S.: Burlington, Iowa.

1893. *Actinocrinus opusculus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 9, pl. 1, figs. 6, 7; p. 28, fig.

Burlington L. S.: Burlington, Iowa.

1897. *Cactocrinus opusculus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 607, pl. 56, figs. 5a, b.

Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus ornatissimus Wachsmuth and Springer.

1890. *Actinocrinus ornatissimus*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 163, pl. 16, fig. 9; pl. 17, fig. 3.
Kinderhook Group: Legrand, Iowa.
1897. *Cactocrinus ornatissimus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 621, pl. 57, fig. 3.
Kinderhook Group: Legrand, Marshall County, Iowa.

Cactocrinus proboscidealisis Hall.

1858. *Actinocrinus proboscidealisis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 584, pl. 10, fig. 13.
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus quaternarius*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 21.
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus proboscidealisis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 3, fig. 2.
1861. *Actinocrinus quaternarius* var. *spiniferus*. Hall, Desc. New Spec. Crin., p. 11.
1861. *Actinocrinus themis*. Hall, Desc. New Spec. Crin., p. 11.
Burlington L. S.
1861. *Actinocrinus excerptus*. Hall, Desc. New Spec. Crin., p. 3.
Burlington L. S.
1861. *Actinocrinus excerptus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 276.
Burlington L. S.: Burlington, Iowa.
- *1861. *Actinocrinus lagena*. Hall, Desc. New Spec. Crin., p. 13.
Burlington L. S.
1881. *Actinocrinus dalyanus*. Miller, Jour. Conn. Soc. Nat. Hist., vol. 4, p. 309, pl. 7, figs. 1, 1a.
Subcarboniferous: Lake Valley Mining District, New Mexico.
1893. *Actinocrinus quaternarius*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 7, pl. 1, figs. 1-3.
Burlington L. S.: Burlington, Iowa.
1894. *Actinocrinus proboscidealisis*. Keyes, Mo. Geol. Surv., vol. 4, p. 185.
Lower Burlington L. S.: Sedalia, Hannibal and Louisiana, Missouri.
1897. *Cactocrinus proboscidealisis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 601, pl. 58, figs. 3-6, 7a-d.
Lower Burlington L. S.: Burlington, Iowa; Sedalia, Missouri; Lake Valley, New Mexico.

Cactocrinus reticulatus Hall.

1861. *Actinocrinus reticulatus*. Hall, Desc. New Spec. Crin., p. 2.
Burlington L. S.
1861. *Actinocrinus thoas*. Hall, Desc. New Spec. Crin., p. 11.
Burlington L. S.
- *1861. *Actinocrinus locellus*. Hall, Desc. New Spec. Crin., p. 15.
Burlington L. S.
1861. *Actinocrinus reticulatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 269.
Burlington L. S.: Burlington, Iowa.
1894. *Actinocrinus reticulatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 186.
Lower Burlington L. S.: Hannibal and Sedalia, Missouri.
1897. *Cactocrinus reticulatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 605, pl. 58, figs. 2a, b.
Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus reticulatus var. ovatus Hall.

1861. *Actinocrinus ovatus*. Hall, Desc. New Spec. Crin., p. 10.
Burlington L. S.

Cactocrinus reticulatus var. *ovatus* Hall—Continued.

1897. *Cactocrinus reticulatus* var. *ovatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 606, pl. 57, fig. 11.

Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus sexarmatus Hall.

1860. *Actinocrinus sexarmatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 21.

Burlington L. S.: Burlington, Iowa.

1872. *Actinocrinus sexarmatus* var. Hall, Photo. Plates of Crinoids, pl. 3, fig. 26.

1897. *Cactocrinus sexarmatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 615, pl. 55, figs. 10, 11.

Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus thalia Hall.

- *1861. *Actinocrinus thalia*. Hall, Desc. New Spec. Crin., p. 13.

Burlington L. S.

- *1861. *Actinocrinus infrequens*. Hall, Desc. New Spec. Crin., p. 14.

Burlington L. S.

1891. *Actinocrinus nodosus*. Miller, Bull. Mo. Geol. Surv., No. 4, p. 33, pl. 5, fig. 7.

Burlington Group: Sedalia, Missouri.

1894. *Actinocrinus thalia*. Keyes, Mo. Geol. Surv., vol. 4, p. 187.

Lower Burlington L. S.: Sedalia, Missouri.

1897. *Cactocrinus thalia*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 604, pl. 56; figs. 2; pl. 57, figs. 12, 13.

Lower Burlington L. S.: Burlington, Iowa; Sedalia, Missouri.

Cactocrinus thetis Hall.

1861. *Actinocrinus thetis*. Hall, Desc. New Spec. Crin., p. 11.

Burlington L. S.

1861. *Actinocrinus securus*. Hall, Desc. New Spec. Crin., p. 14.

Burlington L. S.

1893. *Actinocrinus thetis*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 6, pl. 1, fig. 10.

Yellow beds of Burlington L. S.: Burlington, Iowa.

1897. *Cactocrinus thetis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 614, pl. 56, figs. 3, 4.

Lower Burlington L. S.: Hannibal, Missouri.

CALCEOOCRINUS Hall, 1852.

Calceocrinus bradleyi. See *Halysiocrinus bradleyi*.

Calceocrinus lamellosus Hall.

1860. *Cheirocrinus lamellosus*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 123.

Burlington L. S.

Calceocrinus nodosus. See *Halysiocrinus ventricosus*.

Calceocrinus perplexus. See *Halysiocrinus perplexus*.

Calceocrinus robustus. See *Halysiocrinus robustus*.

Calceocrinus tunicatus. See *Halysiocrinus tunicatus*.

Calceocrinus ventricosus. See *Halysiocrinus ventricosus*.

Calceocrinus wachsmuthi. See *Halysiocrinus ventricosus*.

(CALLOPORA Hall, 1852.)

Callopora missouriensis Rominger. See *Leioclema punctatum*.

Callopora punctata Hall. See *Leioclema punctatum*.

Beyrichia radiata var. **cestriensis** Ulrich.

1891. *Beyrichia radiata* var. *cestriensis*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 204, pl. 14, figs. 4a, b.

Chester Group: Grayson Springs, Kentucky.

Boyrichia simulatrix Ulrich.

1891. *Boyrichia simulatrix*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 205, pl. 18, figs. 7a, b.

Chester Group: Grayson Springs, Kentucky.

Beyrichia or **Primitia**, sp. Jones and Kirkby.

1884. *Beyrichia* or *Primitia*? sp. Jones and Kirkby, Geol. Mag. (3), vol. 1, p. 358, pl. 12, fig. 7.

Lower Coal Measures: Horton, Nova Scotia.

BIOPALLA Wallace, 1878.**Biopalla alicei** Wallace.

1878. *Biopalla Alicei*. Wallace, Am. Jour. Sci. (3), vol. 15, p. 370.

Keokuk L. S. (Geode Bed): Keokuk, Iowa.

Biopalla grandis Wallace.

1878. *Biopalla grandis*. Wallace, Am. Jour. Sci. (3), vol. 15, p. 369.

Keokuk L. S. (Geode Bed): Keokuk, Iowa; Clark County, Missouri.

Biopalla hækeli Wallace.

1878. *Biopalla Hækeli*. Wallace, Am. Jour. Sci. (3), vol. 15, p. 370.

Keokuk L. S. (Geode Bed): Keokuk, Iowa; Canton, Missouri.

Biopalla hyatti Wallace.

1878. *Biopalla Hyatti*. Wallace, Am. Jour. Sci. (3), vol. 15, p. 370.

Keokuk L. S. (Geode Bed): Keokuk, Iowa; Hamilton, Illinois.

Biopalla keokuk Wallace.

1878. *Biopalla Keokuk*. Wallace, Am. Jour. Sci. (3), vol. 15, p. 369.

Keokuk L. S. (Geode Bed): Keokuk, Iowa; Hamilton, Illinois.

Biopalla palmata Wallace.

1878. *Biopalla palmata*. Wallace, Am. Jour. Sci. (3), vol. 15, p. 370.

Keokuk L. S. (Geode Bed): Keokuk, Iowa.

Biopalla woodmani Wallace.

1878. *Biopalla Woodmani*. Wallace, Am. Jour. Sci. (3), vol. 15, p. 369.

Keokuk L. S. (Geode Bed): Keokuk, Iowa.

Biopalla wortheni Wallace.

1878. *Biopalla Wortheni*. Wallace, Am. Jour. Sci. (3), vol. 15, p. 369.

Keokuk L. S. (Geode Bed): Hamilton, Illinois.

BLAIRELLA Miller and Gurley, 1896.**Blairiella sedaliensis** Miller and Gurley.

1896. *Blairiella sedaliensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 7, pl. 1, figs. 4-8.

Chouteau L. S.: Near Sedalia, Missouri.

BLAIROCRINUS Miller, 1891.

Blairocrinus arrosus. See *Actinocrinus arrosus*.

Blairocrinus bullatus. See *Actinocrinus arrosus*.

Blairocrinus spinulosus Miller and Gurley.

1894. *Blairocrinus spinulosus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 28, pl. 7, figs. 16-18.

Chouteau L. S.: Sedalia, Missouri.

Blairocrinus trijugis. See *Actinocrinus trijugis*.

(BLATTINA Burmeister, 1838.)

Blattina bretonensis Scudder. See *Mylacris bretonensis*.

Blattina fascigera Scudder. See *Gerablattina fascigera*.

Blattina heeri Scudder. See *Mylacris heeri*.

Blattina sepulta Scudder. See *Petrablattina sepulta*.

Blattina venusta Lesquereux. See *Etoiblattina venusta*.

Blattina sp. Scudder.

1895. *Blattina* sp. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 142, pl. 10, fig. 16.
Lower Coal Measures: Mazon Creek, Illinois.

BOLLIA Jones and Hall, 1886.

Bollia granifera Ulrich.

1891. *Bollia granifera*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 205, pl. 12, figs. 12a, b.

St. Louis L. S.: Elizabethtown, Kentucky.

BRACHYMETOPUS McCoy, 1847.

Brachymetopus armatus Vogdes.

1891. *Brachymetopus armatus*. Vogdes, Trans. St. Louis Acad. Sci., vol. 5, p. 617, pl. 15, figs. 4, 5.

Waverly Group: Sedalia, Missouri.

Brachymetopus immaturus Herrick.

1888. *Phaethonides ? immaturus*. Herrick, Bull. Den. Univ., vol. 4, p. 59, pl. 1, figs. 9, 15.

Waverly Group: Newark and Cuyahoga Falls, Ohio.

1889. *Phaethonides immaturus*. Herrick, Am. Geol., vol. 3, pl. 1, figs. 9, 15.

1894. *Phillipsia ? immaturus*. Keyes, Mo. Geol. Surv., vol. 4, p. 238.

Lower Burlington L. S.: Louisiana, Missouri.

1895. *Phaethonides immaturus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 14, fig. 9.

Cuyahoga Shale: Cuyahoga Falls, Ohio.

Brachymetopus lodiensis Meek.

1875. *Phillipsia (Griffithides ?) lodiensis*. Meek, Pal. Ohio, vol. 2, p. 323, pl. 18, fig. 3.
Cuyahoga Shale: Lodi and Loudonville, Ohio.

1887. *Brachymetopus lodiensis*. Herrick, Bull. Den. Univ., vol. 2, pl. 3, fig. 4.

1887. *Brachymetopus lodiensis*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 102.

Cuyahoga Shale: Lodi, Medina County, Ohio.

Waverly Group: Loudonville, Ohio.

1888. *Phaethonides (?) lodiensis*. Herrick, Bull. Den. Univ., vol. 4, p. 59.

Waverly Group: Ohio.

Brachymetopus occidentalis Herrick.

1888. *Phaethonides occidentalis*. Herrick, Bull. Den. Univ., vol. 4, p. 57, pl. 1, figs. 10a, b.

Waverly Group: Granville and Newark, Ohio.

Brachymetopus occidentalis Herrick—Continued.

1889. *Phæthonides occidentalis*. Herrick, Am. Geol. vol. 3, pl. 1, fig. 10.
 1895. *Phæthonides occidentalis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 14, figs. 10, 11.
 Waverly Group (Conglomerate I): Granville, Ohio.

Brachymetopus spinosus Herrick.

1888. *Phæthonides spinosus*. Herrick, Bull. Den. Univ., vol. 4, p. 58, pl. 1, figs. 4, 5.
 Waverly Group: Licking and Ashland counties, Ohio.
 1889. *Phæthonides spinosus*. Herrick, Am. Geol., vol. 3, pl. 1, figs. 4, 5.
 1891. *Phæthonides spinosus*. Herrick, Bull. Geol. Soc. Am., vol. 2, p. 42, pl. 1, fig. 13.
 Cuyahoga Shale: Scioto County, Ohio.
 1895. *Phæthonides spinosus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 14, figs. 4, 5
 (16b, c)†
 Cuyahoga Shale: Licking and Ashland counties, Ohio.

BRANCOCERAS Hyatt, 1883.**Brancoceras ixion** Hall.

1860. *Goniatites rotatorius*?. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 101,
 figs. 15-16.
 Goniatite L. S.: Rockford, Indiana.
 1860. *Goniatites ixion*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 125, figs. 1, 2.
 Goniatite L. S.: Rockford, Indiana.
 1879. *Goniatites ixion*. Hall, Pal. N. Y., vol. 5, pt. 2, p. 474, pl. 73, figs. 12-14; pl. 74,
 fig. 12.
 Goniatite L. S.: Rockford, Indiana.
 1883. *Brancoceras Ixion*. Hyatt, Proc. Bost. Soc. Nat. Hist., vol. 22, p. 326.
 1886. *Goniatites Ixion*. Hall, 5th Ann. Rep. N. Y. State Geol., pl. (128) 13, fig. 3.
 Goniatite L. S.: Rockford, Indiana.
 1888. *Goniatites Ixion*. Beecher, Pal. N. Y., vol. 5, pt. 2, Supp., p. 40, pl. 128, fig. 3.
 Goniatite L. S.: Rockford, Indiana.
 1897. *Brancoceras Ixion*. Foord and Crick, Cat. Foss. Ceph., pt. 3, p. 141, fig. 62,
 p. 132.
 Goniatite Limestone, Kinderhook Group: Rockford, Indiana.

(BULIMELLA Hall, 1858.)

Bulimella bulimiformis Hall. See *Bulimorpha bulimiformis*.

Bulimella canaliculata Hall. See *Bulimorpha canaliculata*.

Bulimella elongata Hall. See *Bulimorpha elongata*.

BULIMORPHA Whitfield, 1882.**Bulimorpha bulimiformis** Hall.

1856. *Bulimella bulimiformis*. Hall, Trans. Albany Inst., vol. 4, p. 29.
 St. Louis L. S.: Spergen Hill and Bloomington, Indiana.
 1882. *Bulimorpha bulimiformis*. Whitfield. Bull. Am. Mus. Nat. Hist., vol. 1,
 p. 74, pl. 8, figs. 37-39.
 St. Louis Group: Spergen Hill and Bloomington, Indiana.
 1883. *Bulimorpha bulimiformis*. Hall, 12th Rep. Geol. Surv. Ind., p. 366, pl. 31,
 figs. 37-39.
 St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.
 1889. *Bulimorpha bulimiformis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 300.
 1894. *Bulimorpha bulimiformis*. Keyes, Mo. Geol. Surv., vol. 5, p. 204.
 St. Louis L. S.: St. Louis, Missouri.

Bulimorpha canaliculata Hall.

1856. *Bulimella canaliculata*. Hall, Trans. Albany Inst., vol. 4, p. 29.
St. Louis L. S.: Spergen Hill, Indiana.
1882. *Bulimorpha canaliculata*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1,
p. 74, pl. 8, fig. 41.
St. Louis Group: Spergen Hill, Indiana.
1883. *Bulimorpha canaliculata*. Hall, 12th Rep. Geol. Surv. Ind., p. 367, pl. 31,
fig. 41.
St. Louis Group: Spergen Hill and Lanesville, Indiana.
1889. *Bulimorpha canaliculata*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 300.

Bulimorpha chrysalis Meek and Worthen.

1866. *Polyphemopsis chrysalis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 267.
Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1873. *Polyphemopsis chrysalis*. Meek and Worthen, Geol. Surv. Ill., vol. 5,
p. 596, pl. 28, fig. 7.
Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1889. *Bulimorpha chrysalis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 300.
1891. *Bulimorpha? chrysalis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 264.
Lower Coal Measures: Des Moines, Iowa.

Bulimorpha elongata Hall.

1856. *Bulimella elongata*. Hall, Trans. Albany Inst., vol. 4, p. 30.
St. Louis L. S.: Spergen Hill, Indiana.
1882. *Bulimorpha elongata*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 75,
pl. 8, fig. 40.
St. Louis Group: Spergen Hill, Indiana.
1883. *Bulimorpha elongata*. Hall, 12th Rep. Geol. Surv. Ind., p. 368, pl. 31, fig. 40.
St. Louis Group: Spergen Hill and Lanesville, Indiana.
1889. *Bulimorpha elongata*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 301.

Bulimorpha inornata Meek and Worthen.

1860. *Loxonema inornata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 465.
Upper Coal Measures: Springfield, Illinois.
1866. *Polyphemopsis inornata*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 374,
pl. 31, figs. 8a-c.
Upper Coal Measures: Springfield, Illinois.
1887. *Polyphemopsis inornata*. Herrick, Bull. Den. Univ., vol. 2, p. 20, pl. 2, fig. 15.
Coal Measures: Flint Ridge, Ohio.
1889. *Bulimorpha inornata*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 301.
1894. *Bulimorpha inornata*. Keyes, Mo. Geol. Surv., vol. 5, p. 205, pl. 55, fig. 6.
Upper Coal Measures: Kansas City, Missouri.
1897. *Polyphemopsis inornata*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 41.
Upper Coal Measures: Crawford County, Arkansas.

Bulimorpha? keokuk Worthen.

1884. *Polyphemopsis? keokuk*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 9.
Lower Keokuk L. S.: Keokuk, Iowa.
1889. *Polyphemopsis keokuk*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 301.
1890. *Polyphemopsis? keokuk*. Worthen, Geol. Surv. Ill., vol. 8, p. 144, pl. 23, fig. 3.
Keokuk L. S.: Keokuk, Iowa.

Bulimorpha melanoides Whitfield.

1882. *Polyphemopsis melanoides*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 225.
Maxville L. S.: Newtonville, Ohio.
1891. *Polyphemopsis melanoides*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 592,
pl. 14, fig. 13.
Maxville L. S.: Newtonville, Ohio.

Bulimorpha melanoides Whitfield—Continued.

1895. *Polyphemopsis melanoides*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 478, pl. 10, fig. 13.
 Maxville L. S.: Newtonville, Ohio.

Bulimorpha minuta Stevens.

1858. *Loxonema minuta*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 260.
 Coal Measures: Sangamon County and Danville, Illinois.
 1873. *Actaronina minuta*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 594, pl. 29, fig. 2.
 Coal Measures: Danville, Illinois.
 1888. *Actaronia minuta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 240.
 Lower Coal Measures: Des Moines, Iowa.
 1889. *Bulimorpha minuta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 301.
 1891. *Bulimorpha minuta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 263.
 Lower Coal Measures: Des Moines, Iowa.

Bulimorpha nitidula Meek and Worthen.

1860. *Loxonema nitidula*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 465.
 Upper Coal Measures: Springfield, Illinois.
 1866. *Polyphemopsis nitidula*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 374, pl. 31, figs. 9a, b.
 Upper Coal Measures: Springfield, Illinois.
 1882. *Polyphemopsis nitidula*. White, 11th Rep. Geol. Surv. Ind., p. 370, pl. 42, figs. 7, 8.
 Coal Measures: Eugene, Vermilion County, Indiana.
 1884. *Polyphemopsis nitidula*. White, 13th Rep. Geol. Surv. Ind., p. 163, pl. 27, figs. 7, 8.
 Coal Measures: Eugene, Vermilion County, Indiana.
 1889. *Bulimorpha nitidula*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 302.

Bulimorpha? peracuta Meek and Worthen.

1860. *Eulima? peracuta*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 466.
 Lower Coal Measures: Jacksburg, St. Clair County, Illinois.
 Upper Coal Measures: Near Springfield, Illinois.
 1861. *Polyphemopsis peracuta*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 148.
 1866. *Polyphemopsis peracuta*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 375, pl. 31, figs. 7a, b.
 Upper Coal Measures: Near Urbana, St. Clair County, and near Springfield, Illinois.
 1884. *Polyphemopsis peracuta*. White, 13th Rep. Geol. Surv. Ind., p. 163, pl. 32, figs. 9, 10.
 Coal Measures: Indiana (?).
 1889. *Polyphemopsis peracuta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 302.
 1894. *Eulima? peracuta*. Keyes, Mo. Geol. Surv., vol. 5, p. 205.
 Upper Coal Measures: Sullivan County, Missouri.

BURSACRINUS Meek and Worthen, 1861.**Bursacrinus confirmatus** White.

1862. *Bursacrinus confirmatus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 11.
 Lower Burlington L. S.: Burlington, Iowa.

Bursacrinus wachemuthi Meek and Worthen.

1861. *Bursacrinus Wachemuthi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 137.
 Burlington L. S.: Burlington, Iowa.

Bursacrinus wachsmuthi Meek and Worthen—Continued.

1868. *Bursacrinus Wachsmuthi*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 479, pl. 17, fig. 6.
Burlington Group: Burlington, Iowa.

CACTOCRINUS Wachsmuth and Springer, 1897.**Cactocrinus arnoldi** Wachsmuth and Springer.

1890. *Actinocrinus arnoldi*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 168, pl. 17, fig. 10.
Kinderhook Group: Le Grand, Iowa.
1897. *Cactocrinus Arnoldi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 624, pl. 57, figs. 4a, b.
Kinderhook Group: Le Grand, Marshall County, Iowa.

Cactocrinus clarus Hall.

1861. *Actinocrinus clarus*. Hall, Desc. New Spec. Crin., p. 2.
Burlington L. S.
1861. *Actinocrinus clarus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 277.
Burlington L. S.: Burlington, Iowa.
1872. *Actinocrinus Clarus*. Hall, Photo. Plates of Crin., pl. 3, figs. 24, 25.
1893. *Actinocrinus clarus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 8, pl. 1, figs. 4, 5.
Burlington L. S.: Burlington, Iowa.
1897. *Cactocrinus clarus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 612, pl. 57, figs. 9, 10; pl. 58, fig. 1.
Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus cœlatus Hall.

1858. *Actinocrinus cœlatus*. Geol. Iowa, vol. 1, pt. 2, p. 585, pl. 10, fig. 14a, b.
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus cœlatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 2, fig. 1.
1894. *Actinocrinus cœlatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 187.
Lower Burlington L. S.: Hannibal and White Ledge, Missouri.
1897. *Cactocrinus cœlatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 618, pl. 59, figs. 8, 9.
Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus cœlatus var. *spinotentaculus* Hall.

1860. *Actinocrinus spino-tentaculus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 86.
Burlington L. S.: Burlington, Iowa.
1872. *Actinocrinus spinotentaculites*. Hall, Photo. Plates of Crinoids, pl. 3, figs. 13-17.
1897. *Cactocrinus cœlatus* var. *spinotentaculus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 619, pl. 59, fig. 10.
Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus denticulatus Wachsmuth and Springer.

1897. *Cactocrinus denticulatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 606, pl. 57, figs. 5a, b.
Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus ectypus Meek and Worthen.

1869. *Strotocrinus ectypus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 159.
Lower Burlington L. S.: Burlington, Iowa.
1873. *Strotocrinus ectypus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 353, pl. 7, fig. 5.
Burlington L. S.: Burlington, Iowa.

Cactocrinus ectypus Meek and Worthen—Continued.

1897. *Cactocrinus ectypus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 611, pl. 56, fig. 10.

Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus extensus Wachsmuth and Springer.

1897. *Cactocrinus extensus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 616, pl. 57, figs. 6, 7.

Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus fossatus Miller.

1892. *Actinocrinus fossatus*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 40, pl. 6, figs. 11, 12.

Burlington Group: Sedalia, Missouri.

1894. *Actinocrinus fossatus*. Miller, 18th Rep. Geol. Surv. Ind., p. 294, pl. 6, figs. 11, 12.

Burlington Group: Sedalia, Missouri.

1894. *Actinocrinus fossatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 188.

Burlington L. S.: Sedalia, Missouri.

1897. *Cactocrinus fossatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 620, pl. 55, fig. 12.

Lower Burlington L. S.: Sedalia, Missouri.

Cactocrinus glans Hall.

1860. *Actinocrinus glans*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 16.

Burlington L. S.: Burlington, Iowa.

1860. *Actinocrinus tholus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 35.

Burlington L. S.: Burlington, Iowa.

1861. *Actinocrinus eryx*. Hall, Desc. New Spec. Crin., p. 12.

Burlington L. S.

1892. *Actinocrinus blairi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 35, pl. 5, figs. 27-29.

Burlington Group: Sedalia, Missouri.

1893. *Actinocrinus glans*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 10, fig. pl. 1, figs. 11, 12.

Upper Burlington L. S.: Burlington, Iowa.

1894. *Actinocrinus blairi*. Miller, 18th Rep. Geol. Surv. Ind., p. 289, pl. 5, figs. 27-29.

Burlington Group: Sedalia, Missouri.

1894. *Actinocrinus glans*. Keyes, Mo. Geol. Surv., vol. 4, p. 189, pl. 24, figs. 2a, b.

Upper Burlington L. S.: Ash Grove, Missouri.

1897. *Cactocrinus glans*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 625, pl. 54, figs. 5, 6a-b, 7.

Upper Burlington L. S.: Burlington, Iowa.

Cactocrinus limabrachiatus Hall.

1861. *Actinocrinus limabrachiatus*. Hall, Desc. New Spec. Crin., p. 2.

Burlington L. S.

1861. *Actinocrinus limabrachiatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 268.

Burlington L. S.: Burlington, Iowa.

1893. *Actinocrinus limabrachiatus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 5, pl. 1, figs. 8, 9.

Burlington L. S.: Burlington, Iowa.

1897. *Cactocrinus limabrachiatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 608, pl. 58, figs. 9, 10a-b.

Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus longus Meek and Worthen.

1869. *Actinocrinites longus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 157.
Lower Burlington L. S.: Burlington, Iowa.
1873. *Actinocrinites longus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 345, pl. 8, fig. 1.
Lower Burlington L. S.: Burlington, Iowa.
1897. *Cactocrinus longus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 609, pl. 57, fig. 8.
Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus lucina Hall.

1861. *Actinocrinus lucina*. Hall, Desc. New Spec. Crin., p. 11.
Burlington L. S.
1891. *Actinocrinus puteatus*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 101, pl. 2, fig. 16.
Lower Burlington L. S.: Louisiana, Missouri.
1897. *Cactocrinus lucina*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 603, pl. 56, figs. 8, 9.
Lower Burlington L. S.: Burlington, Iowa; Louisiana, Missouri.

Cactocrinus multibrachiatus Hall.

1858. *Actinocrinus multibrachiatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 580, pl. 10, fig. 10.
Burlington L. S.: Burlington, Iowa.
1861. *Actinocrinus multibrachiatus* var. *echinatus*. Hall, Desc. New Spec. Crin., p. 10.
Burlington L. S.
1897. *Cactocrinus multibrachiatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 617, pl. 56, figs. 6, 7, pl. 58, fig. 8.
Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus nodobrachiatus Wachsmuth and Springer.

1890. *Actinocrinus nodobrachiatus*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 165, pl. 15, fig. 5; pl. 16, fig. 10.
Kinderhook Group: Legrand, Iowa.
1897. *Cactocrinus nodobrachiatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 622, pl. 57, figs. 1, 2.
Kinderhook Group: Legrand, Marshall County, Iowa.

Cactocrinus obesus Keyes.

1894. *Actinocrinus obesus*. Keyes, Mo. Geol. Surv., vol. 4, p. 187, pl. 24, fig. 4.
Burlington L. S.: Hannibal, Missouri.
1897. *Cactocrinus obesus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 613, pl. 55, figs. 9a, b.
Lower Burlington L. S.: Hannibal, Missouri.

Cactocrinus opusculus Hall.

1860. *Actinocrinus opusculus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 2, fig. 6.
1861. *Actinocrinus opusculus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 264.
Burlington L. S.: Burlington, Iowa.
1893. *Actinocrinus opusculus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 9, pl. 1, figs. 6, 7; p. 28, fig.
Burlington L. S.: Burlington, Iowa.
1897. *Cactocrinus opusculus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 607, pl. 56, figs. 5a, b.
Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus ornatissimus Wachsmuth and Springer.

1890. *Actinocrinus ornatissimus*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 163, pl. 16, fig. 9; pl. 17, fig. 3.
Kinderhook Group: Legrand, Iowa.
1897. *Cactocrinus ornatissimus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 621, pl. 57, fig. 3.
Kinderhook Group: Legrand, Marshall County, Iowa.

Cactocrinus proboscidalis Hall.

1858. *Actinocrinus proboscidalis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 584, pl. 10, fig. 13.
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus quaternarius*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 21.
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus proboscidalis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 3, fig. 2.
1861. *Actinocrinus quaternarius* var. *spiniferus*. Hall, Desc. New Spec. Crin., p. 11.
1861. *Actinocrinus themis*. Hall, Desc. New Spec. Crin., p. 11.
Burlington L. S.
1861. *Actinocrinus excerptus*. Hall, Desc. New Spec. Crin., p. 3.
Burlington L. S.
1861. *Actinocrinus excerptus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 276.
Burlington L. S.: Burlington, Iowa.
- *1861. *Actinocrinus lagena*. Hall, Desc. New Spec. Crin., p. 13.
Burlington L. S.
1881. *Actinocrinus dalyanus*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 309, pl. 7, figs. 1, 1a.
Subcarboniferous: Lake Valley Mining District, New Mexico.
1893. *Actinocrinus quaternarius*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 7, pl. 1, figs. 1-3.
Burlington L. S.: Burlington, Iowa.
1894. *Actinocrinus proboscidalis*. Keyes, Mo. Geol. Surv., vol. 4, p. 185.
Lower Burlington L. S.: Sedalia, Hannibal and Louisiana, Missouri.
1897. *Cactocrinus proboscidalis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 601, pl. 58, figs. 3-6, 7a-d.
Lower Burlington L. S.: Burlington, Iowa; Sedalia, Missouri; Lake Valley, New Mexico.

Cactocrinus reticulatus Hall.

1861. *Actinocrinus reticulatus*. Hall, Desc. New Spec. Crin., p. 2.
Burlington L. S.
1861. *Actinocrinus thoas*. Hall, Desc. New Spec. Crin., p. 11.
Burlington L. S.
- *1861. *Actinocrinus locellus*. Hall, Desc. New Spec. Crin., p. 15.
Burlington L. S.
1861. *Actinocrinus reticulatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 269.
Burlington L. S.: Burlington, Iowa.
1894. *Actinocrinus reticulatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 186.
Lower Burlington L. S.: Hannibal and Sedalia, Missouri.
1897. *Cactocrinus reticulatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 605, pl. 58, figs. 2a, b.
Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus reticulatus var. ovatus Hall.

1861. *Actinocrinus ovatus*. Hall, Desc. New Spec. Crin., p. 10.
Burlington L. S.

Cactocrinus reticulatus var. ovatus Hall—Continued.

1897. *Cactocrinus reticulatus* var. *ovatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 606, pl. 57, fig. 11.

Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus sexarmatus Hall.

1860. *Actinocrinus sexarmatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 21.
Burlington L. S.: Burlington, Iowa.
1872. *Actinocrinus sexarmatus* var. Hall, Photo. Plates of Crinoids, pl. 3, fig. 26.
1897. *Cactocrinus sexarmatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 615, pl. 55, figs. 10, 11.

Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus thalia Hall.

- *1861. *Actinocrinus thalia*. Hall, Desc. New Spec. Crin., p. 13.
Burlington L. S.
- *1861. *Actinocrinus infrequens*. Hall, Desc. New Spec. Crin., p. 14.
Burlington L. S.
1891. *Actinocrinus nodosus*. Miller, Bull. Mo. Geol. Surv., No. 4, p. 33, pl. 5, fig. 7.
Burlington Group: Sedalia, Missouri.
1894. *Actinocrinus thalia*. Keyes, Mo. Geol. Surv., vol. 4, p. 187.
Lower Burlington L. S.: Sedalia, Missouri.
1897. *Cactocrinus thalia*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 604, pl. 56; figs. 2; pl. 57, figs. 12, 13.

Lower Burlington L. S.: Burlington, Iowa; Sedalia, Missouri.

Cactocrinus thetis Hall.

1861. *Actinocrinus thetis*. Hall, Desc. New Spec. Crin., p. 11.
Burlington L. S.
1861. *Actinocrinus securus*. Hall, Desc. New Spec. Crin., p. 14.
Burlington L. S.
1893. *Actinocrinus thetis*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 6, pl. 1, fig. 10.
Yellow beds of Burlington L. S.: Burlington, Iowa.
1897. *Cactocrinus thetis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 614, pl. 56, figs. 3, 4.

Lower Burlington L. S.: Hannibal, Missouri.

CALCEOCRINUS Hall, 1852.

Calceocrinus bradleyi. See *Halysiocrinus bradleyi*.

Calceocrinus lamellosus Hall.

1860. *Cheirocrinus lamellosus*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 123.
Burlington L. S.

Calceocrinus nodosus. See *Halysiocrinus ventricosus*.

Calceocrinus perplexus. See *Halysiocrinus perplexus*.

Calceocrinus robustus. See *Halysiocrinus robustus*.

Calceocrinus tunicatus. See *Halysiocrinus tunicatus*.

Calceocrinus ventricosus. See *Halysiocrinus ventricosus*.

Calceocrinus wachsmuthi. See *Halysiocrinus ventricosus*.

(CALLOPORA Hall, 1852.)

Callopora missouriensis Roumiger. See *Leioclema punctatum*.

Callopora punctata Hall. See *Leioclema punctatum*.

CAMAROPHORELLA Hall, 1893.**Camarophorella lenticularis White and Whitfield.**

1862. *Pentamerus lenticularis*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 295.
Chemung Group: Burlington, Iowa.
1865. *Pentamerus lenticularis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 117.
Base of Burlington L. S.: Burlington, Iowa.
1894. *Camarophorella lenticularis*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 45, figs. 5, 6.
Yellow S. S.: Burlington, Iowa.
1895. *Camarophorella lenticularis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 62, figs. 46-48.
Yellow S. S. of Burlington Group: Burlington, Iowa.

CAMAROPHORIA King, 1844.**Camarophoria bisulcata Shumard.**

1858. *Camarophoria (?) bisulcata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 296.
Dark Permian L. S.: Guadalupe Mountains.
1859. *Camarophoria bisulcata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 394, pl. 11, fig. 2.
Dark and White Permian L. S.: Guadalupe Mountains.

Camarophoria cooperensis. See Rhynchonella cooperensis.**Camarophoria caputtestudinis White.**

1862. *Rhynchonella caput testudinis*. White, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 23.
Lower Burlington L. S.: Burlington, Iowa.

Camarophoria explanata McChesney.

1860. *Rhynchonella explanata*. McChesney, Desc. New Pal. Foss., p. 50.
Kaskaskia L. S.
1868. *Rhynchonella explanata*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 30, pl. 6, figs. 7a-c.
Chester L. S.
1894. *Pugnax explanatus*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 44, figs. 14-16.
Kaskaskia L. S.: Illinois.
1895. *Pugnax explanatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 60, figs. 43-45.
Kaskaskia L. S.: Illinois.

Camarophoria giffordi. See Enteletes hemiplicata.**Camarophoria globulina. See Pugnax globulina and Pugnax uta.****Camarophoria occidentalis Miller.**

1881. *Camarophoria occidentalis*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 313, pl. 7, figs. 7-7b.
Subcarboniferous: Lake Valley Mining District, New Mexico.

Camarophoria ringens Swallow.

1860. *Rhynchonella ringens*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 653.
Encrinital L. S.: Callaway County, Missouri.
1894. *Rhynchonella ringens*. Keyes, Mo. Geol. Surv., vol. 5, p. 102.
Burlington L. S.: Fulton and Hannibal, Missouri.
1895. *Camarophoria ringens*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 84, fig. 45.
Burlington L. S.: Louisiana, Missouri.

Camarophoria schlotheimi von Buch.

1859. *Camarophoria schlotheimi* (?) Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 395.

White Permian L. S.: Guadalupe Mountains.

Camarophoria subcuneata Hall.

1856. *Rhynchonella subcuneata*. Hall, Trans. Albany Inst., vol. 4, p. 11.
St. Louis L. S.: Bloomington and Spergen Hill, Indiana.
1858. *Rhynchonella subcuneata*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 658, pl. 23, figs. 3a-c.
Warsaw L. S.: Bloomington and Spergen Hill, Indiana.
1882. *Rhynchonella subcuneata*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 51, pl. 6, figs. 47-49.
St. Louis Group: Spergen Hill, Paynters Hill, and Bloomington, Indiana.
1883. *Rhynchonella subcuneata*. Hall, 12th Rep. Geol. Surv. Ind., p. 333, pl. 29, figs. 47-49.
St. Louis Group: Bloomington, Lanesville, and Spergen Hill, Indiana.
1888. *Rhynchonella subcuneata*? Herrick, Bull. Den. Univ., vol. 3, p. 39, pl. 7, fig. 23.
Waverly Group: Licking County, Ohio.
1894. *Camarophoria subcuneata*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 45, figs. 3, 4.
St. Louis Group: Washington County, Indiana.
1894. *Rhynchonella subcuneata*. Keyes, Mo. Geol. Surv., vol. 5, p. 102.
Keokuk L. S.: Boonville, Missouri.
1895. *Camarophoria subcuneata*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 62, figs. 34-37.
St. Louis Group: Washington County, Indiana.

Camarophoria subtrigona Meek and Worthen.

1860. *Rhynchonella subtrigona*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 451.
Keokuk L. S.: Warsaw, Illinois.
1860. *Rhynchonella Parvini*. McChesney, Desc. New Spec. Pal. Foss., p. 83.
1866. *Camarophoria subtrigona*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 251, pl. 18, figs. 8a-c.
Keokuk L. S.: Keokuk, Iowa; Nauvoo and Warsaw, Illinois.
1868. *Camarophoria subtrigona*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 31, pl. 6, figs. 2a, b.
Keokuk L. S.: Keokuk, Iowa; Nauvoo and Warsaw, Illinois.
1894. *Camarophoria subtrigona*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 45, figs. 1, 2.
Chert of Burlington L. S.: Burlington, Iowa.
Keokuk Group: Nauvoo, Illinois.
1894. *Rhynchonella subtrigona*. Keyes, Mo. Geol. Surv., vol. 5, p. 102.
Keokuk L. S.: Wayland, Missouri.
1895. *Camarophoria subtrigona*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 62, figs. 38-43.
Chert of Burlington L. S.: Burlington, Iowa; Pike County, Missouri.
Keokuk Group: Nauvoo, Illinois.

Camarophoria swallovia. See Pugnax swallovia.**Camarophoria thera** Walcott.

1884. *Rhynchonella Thera*. Walcott, Pal. Eureka Dist., p. 223, pl. 7, figs. 6-8c.
Lower Carboniferous: Eureka District, Nevada.

Camarophoria wortheni Hall.

1856. *Rhynchonella Wortheni*. Hall, Trans. Albany Inst., vol. 4, p. 11.
St. Louis L. S.: Alton, Illinois.

Camarophoria wortheni Hall—Continued.

1882. *Camarophoria Wortheni*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 54, pl. 6, figs. 35-39.
St. Louis Group: Alton, Illinois.
1883. *Camarophoria (?) wortheni*. Hall, 12th Rep. Geol. Surv. Ind., p. 334, pl. 29, figs. 35-39.
St. Louis Group: Alton, Illinois.

CAMAROTECCHIA Hall, 1892.**Camarotœchia contracta Hall.**

1867. *Rhynchonella (Stenocisma) contracta*. Hall, Pal. N. Y., vol. 4, p. 351, pl. 55, figs. 26-39.
Chemung Group: New York; Licking County, Ohio.
1888. *Rhynchonella contracta*. Herrick, Bull. Den. Univ., vol. 3, p. 39, pl. 10, fig. 9.
Waverly Group: Licking County, Ohio.
1888. *Rhynchonella contracta*. Herrick, Bull. Den. Univ., vol. 4, p. 23, pl. 11, fig. 21.
Waverly Group: Medina, Ohio.

Camarotœchia endlichi Meek.

1875. *Rhynchonella Endlichi*. Meek, Bull., U. S. G. and G. Surv. Terr., vol. 1, 2d ser., No. 1, p. 46.
Carboniferous?: East of the Animas River, Colorado Territory.
1880. *Rhynchonella endlichi*. White, Cont. to Inv. Pal., No. 6, p. 133, pl. 33, figs. 4a, b, pl. 36, figs. 2a, b.
Upper Devonian or Carboniferous: East of Animas River, Colorado.

Camarotœchia marshallensis Winchell.

1862. *Rhynchonella Marshallensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 408.
Marshall Group: Marshall, Michigan.
1870. *Rhynchonella Marshallensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 253.
Waverly Group: Granville, Ohio.
1888. *Rhynchonella marshallensis*. Herrick, Bull. Den. Univ., vol. 3, p. 40.
Waverly Group: Licking County, Ohio.
1888. *Rhynchonella marshallensis*. Herrick, Bull. Den. Univ., vol. 4, p. 23, pl. 3, fig. 18.
Waverly Group: Ashland County, and near Granville, Ohio.
1895. *Rhynchonella marshallensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 14.
Cuyahoga Shale: Ohio.

Camarotœchia sageriana Winchell.

1862. *Rhynchonella Sageriana*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 407.
Marshall S. S.: Marshall, Michigan.
1865. *Rhynchonella Sageriana*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 122.
Marshall Group: Weymouth, near Ashland, Drew's sawmill, Big Brook, Orange, Cuyahoga County, and 2 miles southwest of Northfield Center, Summit County, Ohio.
1869. *Rhynchonella Sageriana*. Winchell, Safford's Geol. of Tenn., p. 443.
Shale just above Black Shale: Hickman and Maury counties, Tennessee.
1870. *Rhynchonella Sageriana*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 253.
Waverly Group: Tennessee; Vinton County, Newark, Sciotoville, and Granville, Ohio.
1888. *Rhynchonella sageriana*. Herrick, Bull. Den. Univ., vol. 3, p. 39, pl. 2, fig. 15.
Waverly Group: Licking County, Ohio.

Camarotoechia sappho Hall.

1867. *Rhynchonella (Stenocisma) sappho*. Hall, Pal. N. Y., vol. 4, p. 340, pl. 54, figs. 33-43.

Hamilton Group: New York.

1888. *Rhynchonella sappho*. Herrick, Bull. Den. Univ., vol. 3, p. 40, pl. 5, fig. 1, pl. 7, fig. 25.

Waverly Group: Licking County, Ohio.

1895. *Rhynchonella sappho*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 21, fig. 1.
Kinderhook or base of Burlington: Ohio.

CAMPOPHYLLUM Edwards and Haime, 1850.**Campophyllum kansasense Miller and Gurley.**

1894. *Campophyllum kansasense*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 67, pl. 7, figs. 19-22.

Upper Coal Measures: Kansas City, Missouri.

Campophyllum ? texanum Shumard.

1859. *Campophyllum (?) Texanum*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 388.

White Permian L. S.: Guadalupe Mountains.

Campophyllum torquium Owen.

1852. *Cyathophyllum (vermiculare?)*. Owen, Geol. Rep. Wis. Iowa and Minn., tab. 4, fig. 2.

Carboniferous L. S.: Near mouth of Keg Creek.

1852. *Cyathophyllum torquium*. Owen, Geol. Rep. Wis., Iowa, and Minn., tab. 4, fig. 2.

Carboniferous L. S.: Near mouth of Keg Creek.

1852. *Cyathophyllum flexuosum (?)*. Owen, Geol. Rep. Wis., Iowa, and Minn., tab. 4, figs. 3a, b.

Carboniferous L. S.: Near mouth of Keg Creek.

1872. *Campophyllum torquium*. Meek, U. S. Geol. Surv. Nebr., p. 145, pl. 1, figs. 1a-d.

Upper Coal Measures: Rock Bluff and Cedar Bluff, Nebraska; Iowa.

Coal Measures: Illinois.

1884. *Campophyllum torquium*. White, 13th Rep. Geol. Surv. Ind., p. 119, pl. 23, figs. 10-13.

Upper Coal Measures: Iowa; Missouri; Nebraska; Illinois; Indiana.

1894. *Campophyllum torquium*. Keyes, Mo. Geol. Surv., vol. 4, p. 107, pl. 12, figs. 7a-c, pl. 13, fig. 7.

Coal Measures: Kansas City, Missouri.

Campophyllum (species undetermined).

1876. *Campophyllum* — ? —. White, Powell's Geol. Rep. Uinta Mts., p. 88.

Red Wall Group: Cataract Canyon, Utah.

1877. *Campophyllum* (undt. sp.) Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 57, pl. 5, figs. 2, 2b. (*Zaphrentis* undt. sp.) on explanation of plate.

Carboniferous: Diamond Range, near Newark.

CAMPTOCRINUS Wachsmuth and Springer, 1897.**Camptocrinus cirrifer Wachsmuth and Springer.**

1897. *Camptocrinus cirrifer*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 780, pl. 76, figs. 13a-c.

Kaskaskia Group: Near Sloan's Valley, Pulaski County, Kentucky.

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Camptocrinus myelodaetylus Wachsmuth and Springer.

1897. *Camptocrinus myelodaetylus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 779, pl. 75, figs. 1, 2a, b.

Keokuk Group: Indian Creek, Montgomery County, Indiana.

CANDONA Baird, 1845.**Candona? elongata** Jones and Kirkby.

1884. *Candona? elongata*. Jones and Kirkby, Geol. Mag. (3), vol. 1, p. 361, pl. 12, fig. 10.

Coal Measures: Joggins, Nova Scotia.

CAPULUS Montfort, 1810.**Capulus acutirostris**. See *Orthonychia acutirostre*.**Capulus biserialis** Hall.

1860. *Platyceras biserialis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 80.
Burlington L. S.: Quincy, Illinois.
1868. *Platyceras biserialis*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 509, pl. 15, figs. 3a, b.
Burlington L. S.: Quincy, Illinois.
1890. *Capulus biserialis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 167.
Burlington L. S.: Quincy, Illinois.
1890. *Capulus biserialis*. Keyes, Am. Geol., vol. 6, p. 9.
1894. *Capulus biserialis*. Keyes, Mo. Geol. Surv., vol. 5, p. 177, pl. 53, figs. 12a, b.
Burlington L. S.: Quincy, Illinois.

Capulus capax Keyes.

1888. *Platyceras capax*. Keyes, Proc. Am. Phil. Soc., vol. 25, p. 241, pl., figs. 14, 15.
Burlington L. S.: Near Burlington, Iowa.
1890. *Platyceras capax*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 179.

Capulus chesterensis. See *Orthonychia chesterensis*.**Capulus cornuformis**. See *Orthonychia cornuforme*.**Capulus cyrtolites**. See *Orthonychia cyrtolites*.**Capulus equilateralis** Hall.

1852. *Ancella crassicollis?* Owen, Geol. Rep. Wis., Iowa, and Minn., tab. 5, fig. 7.
Lower Carboniferous L. S.: Keokuk rapids of the Mississippi River.
1860. *Platyceras equilatera*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 89.
Keokuk L. S.: Keokuk, Iowa, Warsaw, Illinois.
1873. *Platyceras equilatera*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 518, pl. 17, fig. 2.
Keokuk Group: Keokuk, Iowa; Warsaw, Illinois.
1881. *Platyceras equilatera*. White, 2d Ann. Rep. Dep. Stat. and Geol. Ind., p. 514, pl. 7, fig. 5.
Keokuk Group: Crawfordsville, Indiana.
1888. *Platyceras equilaterum*. Keyes, Proc. Am. Phil. Soc., vol. 25, p. 242, pl., figs. 2, 3.
1889. *Platyceras equilaterum*. Keyes, Am. Geol., vol. 8, p. 380, figs. 1, 2.
Keokuk Shale: Crawfordsville, Indiana.
1889. *Platyceras equilaterum*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 288.
Burlington L. S.: Burlington, Iowa.
1890. *Capulus equilaterus*. Keyes, Am. Geol., vol. 6, p. 9.
1890. *Capulus equilateralis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 171, pl. 2, fig. 11.

Capulus equilateralis Hall—Continued.

1890. Keokuk Group: Keokuk and Bonaparte, Iowa; Warsaw and Niota, Illinois; Crawfordville, Indiana.

Burlington L. S.: Burlington, Iowa.

1894. *Capulus equilateralis*. Keyes, Mo. Geol. Surv., vol. 5, p. 178, pl. 52, figs. 10a, b.

Burlington L. S.: Burlington, Iowa; Springfield, Missouri.

Keokuk L. S. and Shales: Wayland, Missouri; Keokuk and Bonaparte, Iowa; Warsaw and Niota, Illinois.

Capulus fissurella. See *Igoceras fissurella*.

Capulus formosum. See *Orthonychia formosum*.

Capulus haliotoides Meek and Worthen.

1866. *Platyceras haliotoides*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 264.

Waverly S. S.: Richfield, Ohio.

1868. *Platyceras haliotoides*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 458, pl. 14, figs. 3a, b.

Waverly Group: Richfield, Ohio.

1870. *Platyceras haliotoides*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 257.

Waverly Group: Newark, Ohio.

1888. *Platyceras haliotoides*. Herrick, Bull. Den. Univ., vol. 3, p. 91, pl. 2, fig. 23.

Waverly Group: Licking County, Ohio.

1890. *Capulus haliotoides*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 165.

Kinderhook beds: Richfield and Newark, Ohio.

1891. *Platystoma broadheadi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 86, pl. 14, figs. 19, 20.

Chouteau L. S.: Sedalia, Missouri.

1892. *Platystoma broadheadi*. Miller, 17th Rep. Geol. Surv. Ind., p. 696, pl. 14, figs. 19, 20.

Chouteau L. S.: Sedalia, Missouri.

1892. *Capulus haliotoides*. Keyes, Am. Geol., vol. 10, p. 276.

1894. *Capulus haliotoides*. Keyes, Mo. Geol. Surv., vol. 5, p. 174, pl. 53, figs. 9a, b.

Kinderhook L. S.: Sedalia, Missouri.

Capulus herzeri Winchell.

1870. *Platyceras Herzeri*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 256.

Waverly Group: Newark, Ohio.

1888. *Platyceras herzeri*. Herrick, Bull. Den. Univ., vol. 3, p. 91, pl. 2, fig. 24; pl. 5, fig. 8.

Waverly Group: Licking County, Ohio.

1890. *Platyceras herzeri*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 180.

1895. *Platyceras herzeri*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 21, fig. 8.

Kinderhook: Granville, Ohio.

Capulus infundibulum. See *Igoceras pabulocrinus*.

Capulus latus Keyes.

1888. *Platyceras latus*. Keyes, Proc. Am. Phil. Soc., vol. 25, p. 242, pl., figs. 10, 11.

Burlington L. S.: Burlington, Iowa.

1889. *Platyceras latus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 290.

Burlington L. S.: Burlington, Iowa.

1890. *Capulus latus*. Keyes, Am. Geol., vol. 6, p. 9.

1890. *Capulus latus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 168.

Burlington L. S.: Burlington, Iowa.

1894. *Capulus latus*. Keyes, Mo. Geol. Surv., vol. 5, p. 176, pl. 53, figs. 13a, b.

Burlington L. S.: Burlington, Iowa; Hannibal, Missouri.

Capulus lodiensis Meek.

1871. *Platyceras (Orthonychia?) lodiensis*. Meek, Proc. Acad. Nat. Sci. Phil., p. 170.
Waverly Group: Lodi, Ohio.
1875. *Platyceras (Orthonychia?) Lodiensis*. Meek, Pal. Ohio, vol. 2, p. 313, pl. 13,
figs. 1a, b.
Waverly Group: Lodi, Ohio.
1888. *Platyceras lodiensis*. Herrick, Bull. Den. Univ., vol. 4, p. 46, pl. 11, fig. 2;
pl. 8, figs. 1, 7.
Waverly Group: Bagdad, Ohio.
1890. *Capulus lodiensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 165.
Kinderhook beds: Lodi, Ohio.
1894. *Capulus lodensis*. Keyes, Mo. Geol. Surv., vol. 5, pl. 53, figs. 6a, b.
1895. *Platyceras lodiensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 19, figs. 1, 7.
Cuyahoga Shale: Bagdad, Ohio.

Capulus nasutum Miller.

1891. *Platyceras nasutum*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 82,
pl. 14, figs. 17, 18.
Chouteau L. S.: Sedalia, Missouri.
1892. *Platyceras nasutum*. Miller, 17th Rep. Geol. Surv. Ind., p. 692, pl. 14,
figs. 17, 18.
Chouteau L. S.: Sedalia, Missouri.

Capulus obliquus Keyes.

1888. *Platyceras obliquum*. Keyes, Proc. Am. Phil. Soc., vol. 25, p. 241, pl.,
figs. 12, 13.
Upper Burlington L. S.: Burlington, Iowa.
1889. *Platyceras obliquum*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 290.
Burlington L. S.: Burlington, Iowa.
1890. *Capulus obliquus*. Keyes, Am. Geol., vol. 6, p. 9.
1890. *Capulus obliquus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 168, pl. 2, fig. 3.
Burlington L. S.: Burlington, Iowa.
1894. *Capulus obliquus*. Keyes, Mo. Geol. Surv., vol. 5, p. 177, pl. 53, figs. 14a, b.
Burlington L. S.: Hannibal, Missouri; Burlington, Iowa.

Capulus occidentis Walcott.

1884. *Platyceras occidentis*. Walcott, Pal. Eureka Dist., p. 254, pl. 24, figs. 9, 9a.
Lower Carboniferous: Eureka District, Nevada.
1890. *Capulus occidentis*. Keyes, Am. Geol., vol. 6, p. 9.
1890. *Capulus occidentis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 163.
Lower Carbonic: Eureka District, Nevada.
1894. *Capulus occidentis*. Keyes, Mo. Geol. Surv., vol. 5, pl. 53, figs. 8a, b.

Capulus ovalis Stevens.

1858. *Acroculia ovalis*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 261.
Archimedes L. S.: Union County, Illinois.
1866. *Platyceras lorigatum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 263.
Chester Group: Ste. Genevieve County, Missouri; Randolph County,
Illinois.
1890. *Capulus ovalis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 176.
Kaskaskia L. S.: Union and Randolph counties, Illinois; Ste. Genevieve
County, Missouri.
1892. *Capulus ovalis*. Keyes, Am. Geol., vol. 10, p. 276.
1894. *Capulus ovalis*. Keyes, Mo. Geol. Surv., vol. 5, p. 180.
Kaskaskia L. S.: Union and Randolph counties, Illinois; Ste. Genevieve
County, Missouri.

Capulus paralius White and Whitfield.

1862. *Platyceras paralius*. White and Whitfield, Proc. Doct. Soc. Nat. Hist., vol. 8, p. 302.
Chemung Group: Burlington, Iowa.
1865. *Platyceras paralius*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 131.
Lithographic L. S.: Clarksville, Missouri.
1888. *Platyceras* sp. (cf. *P. paralius*). Herrick, Bull. Den. Univ., vol. 3, p. 92, pl. 1, fig. 23 (fig. 22†).
Waverly Group: Licking County, Ohio.
1889. *Platyceras paralius*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 294.
Kinderhook Group: Burlington, Iowa.
1890. *Capulus paralius*. Keyes, Am. Geol., vol. 6, p. 9.
1890. *Capulus paralius*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 166, pl. 2, figs. 1a, b.
Kinderhook beds: Des Moines and Marshall counties, Iowa; Lodi, Ohio.
1894. *Capulus paralius*. Keyes, Mo. Geol. Surv., vol. 5, p. 174, pl. 53, figs. 1a-d.
Chouteau L. S.: Sedalia, Missouri.
Burlington L. S.: Louisiana, Missouri.

Capulus parvus Swallow.

1858. *Capulus parvus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 206.
Coal Measures: Valley of the Verdigris, Kansas.
1872. *Platyceras Nebrascensis*. Meek, U. S. Geol. Surv. Nebr., p. 227, pl. 4, figs. 15a, b.
Upper Coal Measures: Three-fourths of a mile west of Nebraska City Landing, Nebraska.
Middle Coal Measures: Illinois.
1877. *Platyceras Nebrascense*. White, U. S. Geol. Surv. W. 100 Merid., vol. 4, p. 159, pl. 12, figs. 5a-d.
Carboniferous: Near Santa Fe, New Mexico.
1884. *Platyceras Nebrascense*. White, 13th Rep. Geol. Surv. Ind., p. 159, pl. 32, figs. 15, 16.
Coal Measures: Eugene, Edwardsport, and New Harmony, Indiana.
1890. *Capulus parvus*. Keyes, Am. Geol., vol. 6, p. 9.
1890. *Capulus parvus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 177, pl. 2, figs. 14a-c.
Upper Coal Measures: Indiana, Iowa, Nebraska, Kansas, and New Mexico.
1894. *Capulus parvus*. Keyes, Mo. Geol. Surv., vol. 5, p. 180, pl. 54, figs. 5a, b.
Upper Coal Measures: Kansas City, Missouri.

Capulus piso Walcott.

1884. *Platyceras Piso*. Walcott, Pal. Eureka Dist., p. 254, pl. 24, figs. 7-7b.
Lower Carboniferous: Eureka District, Nevada.
1890. *Capulus? piso*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 164.
Lower Carbonic: Eureka District, Nevada.
1894. *Capulus piso*. Keyes, Mo. Geol. Surv., vol. 5, pl. 53, figs. 7a-c.

Capulus quincyensis. See *Igoceras quincyense*.**Capulus spinigerum** Worthen.

1873. *Platyceras spinigerum*. Worthen, Geol. Surv. Ill., vol. 5, p. 594, pl. 28, fig. 4.
Coal Measures: Near Brighton, Illinois.
1890. *Capulus spinigerus*. Keyes, Am. Geol., vol. 6, p. 9.
1890. *Capulus spinigerus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 178.
Lower Coal Measures: Brighton, Illinois.

Capulus subplicatus. See *Igoceras subplicatum*.**Capulus sulcatus** Keyes.

1890. *Capulus sulcatus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 175, pl. 2, figs. 12a, b.
Keokuk Shales: Crawfordville, Indiana.

Capulus tribulosus White.

1890. *Platyceras tribulosum*. White, Cont. to Inv. Pal., No. 8, p. 168, pl. 41, figs. 6a, b.
Burlington L. S.: Burlington, Iowa.
1889. *Platyceras tribulosum*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 290.
Burlington L. S.: Burlington, Iowa.
1890. *Capulus tribulosus*. Keyes, Am. Geol., vol. 6, p. 9.
1890. *Capulus tribulosus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 170, pl. 2, figs. 4a, b.
Burlington L. S.: Burlington, Iowa.
1894. *Capulus tribulosus*. Keyes, Mo. Geol. Surv., vol. 5, p. 175, pl. 53, figs. 11a-c.
Burlington L. S.: Hannibal and Louisiana, Missouri.

Capulus trigonalis Stevens.

1868. *Acroculia trigonalis*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 260.
Coal Measures: Danville, Illinois.

(Capulus triplicatus Swallow.)

1858. *Capulus triplicatus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 205.
Coal Measures: Near Bull Creek, Santa Fe Road, Kansas.
1890. *Capulus triplicatus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 180. (Not a gastropod.)

Capulus vomerium Winchell.

1863. *Platyceras vomerium*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 19.
Yellow S. S. and base of Burlington L. S.: Burlington, Iowa.
1885. *Platyceras vomerium*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 131.
Marshall Group: Big Brook, Orange, Cuyahoga County, Ohio.
1888. *Platyceras vomerium?* Herrick, Bull. Den. Univ., vol. 4, pl. 7, fig. 12.
Waverly Group: Moot's Run, Licking County, Ohio.
1890. *Platyceras vomerium*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 180.
1895. *Platyceras vomerium?* Herrick, Geol. Surv. Ohio, vol. 7, pl. 18, fig. 12.
Cuyahoga Shale: Moot's Run, Licking County, Ohio.

Capulus (species undetermined).

1888. *Platyceras* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 1, fig. 22.
Waverly Group: Licking County, Ohio.
1888. *Platyceras* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 3, fig. 3.
Waverly Group: Licking County, Ohio.
1888. *Platyceras* sp. ? Herrick, Bull. Den. Univ., vol. 3, pl. 7, fig. 38.
Waverly Group: Licking County, Ohio.
1888. *Platyceras* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 12, fig. 38.
Waverly Group: Licking County, Ohio.
1888. *Platyceras* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 14.
Waverly Group: Cuyahoga Falls, Ohio.

CARBONARCA Meek and Worthen, 1870.**Carbonarca gibbosa Meek and Worthen.**

1870. *Carbonarca gibbosa*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 40.
Upper Coal Measures: Springfield, Illinois.
1875. *Carbonarca gibbosa*. Meek and Worthen, Geol. Surv. Ill., vol. 6, p. 531,
pl. 33, fig. 6.
Upper Coal Measures: Springfield and LaSalle, Illinois.

CARBONIA Jones and Kirkby, 1879.**Carbonia ? bairdioides Jones and Kirkby.**

1868. *Bairdia* sp. ? Dawson, Acad. Geol., p. 206, fig. 48a.
Coal Measures: Nova Scotia.

Carbonia ? bairdioides Jones and Kirkby—Continued.

*1879. *Cythere ? (Carbonia) bairdioides*. Jones and Kirkby, Ann. Mag. Nat. Hist. (5), vol. 4, p. 38, pl. 3, figs. 24, 25.

1884. *Carbonia (?) bairdioides (?)*. Jones and Kirkby, Geol. Mag. (3), vol. 1, p. 359, pl. 12, figs. 8a-d.

Coal Measures: Joggins, Nova Scotia.

Carbonia ? elongata Jones and Kirkby.

*1884. *Carbonia ? elongata*. Jones and Kirkby, Ann. Mag. Nat. Hist. (6), vol. 1, p. 361, pl. 12, fig. 10.

Carboniferous: Joggins, Nova Scotia.

Carbonia fabulina Jones and Kirkby.

1868. *Cytherella inflata*. Dawson, Acad. Geol., p. 206, fig. 48.

Coal Measures: Nova Scotia.

*1879. *Carbonia fabulina*. Jones and Kirkby, Ann. Mag. Nat. Hist. (5), vol. 4, p. 31, pl. 2, figs. 1-9.

1884. *Carbonia fabulina*. Jones and Kirkby, Geol. Mag. (3), vol. 1, p. 358, pl. 12, figs. 9a-e.

Coal Measures: Joggins, Nova Scotia.

CARBONICOLA McCoy, 1856.**Carbonicola angulata Dawson.**

1868. *Naiadites angulata*. Dawson, Acad. Geol., p. 206, fig. 46.

Lower Coal Formation: Parrsborough, Nova Scotia.

1894. *Carbonicola angulata*. Hind, Quart. Jour. Geol. Soc. Lond., vol. 50, p. 442, pl. 20, fig. 14.

Carbonicola bradorica Dawson.

1868. *Anthracosia Bradorica*. Dawson, Acad. Geol., p. 314, fig. 133b.

Lower Carboniferous: Braddeck, Cape Breton.

1894. *Carbonicola Bradorica*. Dawson, Rev. Biv. Moll. Coal-Form. Nova Scotia, p. 18, fig.

Lower Carboniferous: Braddeck, Cape Breton.

CARDINIA Agassiz, 1833.

Cardinia equimarginalis. See *Edmondia equimarginalis*.

Cardinia antigonesensis Dawson.

1868. *Cardinia Antigonesensis*. Dawson, Acad. Geol., p. 304.

Carboniferous L. S.: Antigonish, Nova Scotia.

Cardinia concentrica. See *Sanguinolites concentricus*.

Cardinia cordata Swallow.

1858. *Cardinia cordata*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 191.

Lower Permian: Valley of Cottonwood, Kansas.

Cardinia fragilis Cox.

1857. *Cardinia ? fragilis*. Cox, Geol. Rep. Ky., vol. 3, p. 570, pl. 8, fig. 9.

Coal Measures: Airdrie, Muhlenburg County, Kentucky.

Cardinia listeri Sowerby.

1858. *Cardinia listeri (?)*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 192.

Permian: Kansas.

Cardinia nana.

1868. *Cardinia nana*. Dawson, Acad. Geol., p. 304.

Carboniferous L. S.: Onslow, Nova Scotia.

Cardinia occidentalis Swallow.

1860. *Cardinia occidentalis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 655.
Chouteau L. S.: Cooper, Saline, and Moniteau counties, Missouri.

Cardinia occidentalis var. minor Swallow.

1860. *Cardinia occidentalis* var. *minor*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 655.
Chouteau L. S.: Cooper, Saline, and Moniteau counties, Missouri.

Cardinia subangulata Swallow.

1858. *Cardinia (?) sub-angulata*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 192.
Lower Permian: Valley of Cottonwood, Kansas.

Cardinia subangulata Dawson.

1868. *Cardinia sub-angulata*. Dawson, Acad. Geol., p. 304, fig. 108.
Carboniferous L. S.: Pugwash, Nova Scotia.

CARDIOLA Broderip, 1844.**Cardiola flicostata Walcott.**

1884. *Cardiola? flicostata*. Walcott, Pal. Eureka Dist., p. 261, pl. 22, figs. 4, 4a.
Lower Carboniferous: Eureka District, Nevada.

CARDIOMORPHA De Koninck, 1844.**Cardiomorpha archiacana De Koninck.**

1868. *Cardiomorpha Archiacana*. Dawson, Acad. Geol., p. 304.
Carboniferous L. S.: Windsor, Nova Scotia.

Cardiomorpha capuloides Winchell.

1862. *Cardiomorpha capuloides*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 416.
Marshall Group: Pt. aux Barques, Michigan.

Cardiomorpha julia Winchell.

1862. *Cardiomorpha Julia*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 416.
Marshall Group: Battle Creek, Marshall and Moscow, Michigan.
1865. *Cardiomorpha Julia*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 128.
Marshall Group: Napoleon Cut, Jackson County, Michigan.

Cardiomorpha kansasensis Swallow.

1868. *Cardiomorpha Kansasensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 191.
Permian: Valley of Cottonwood, Kansas.

Cardiomorpha missouriensis Shumard.

1858. *Cardiomorpha Missouriensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 207.
Coal Measures: Charbonniere, St. Louis County, and Lexington, Missouri.
1860. *Nucula cylindrica*. McChesney, Desc. New Pal. Foss., p. 54.
Coal Measures: Carnahan's Coal Mine, Mercer County, Illinois.
*1865. *Nucula mercerensis*. McChesney, Ill. New Spec. Foss., pl. 2, figs. 12a-c.
1868. *Cardiomorpha missouriensis*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 40, pl. 2, figs. 12a-c.
Coal Measures: Mercer County, Illinois.
1873. *Cardiomorpha Missouriensis*. Meek and Worthen, Geol. Surv., Ill., vol. 5, p. 588, pl. 27, fig. 8.
Coal Measures: Colchester, Illinois.

Cardiomorpha missouriensis Shumard—Continued.

1877. *Cardiomorpha Missouriensis*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 277, pl. 6, figs. 1, 2.
 Coal Measures: Near Eberhardt Mills, White Pine, Nevada.
 1894. *Cardiomorpha missouriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 131.
 Lower Coal Measures: Charboniere and Lexington, Missouri.

Cardiomorpha modiolaris Winchell.

1862. *Cardiomorpha modiolaris*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 416.
 Marshall Group: Columbia, Marshall, Moscow, and Battle Creek, Michigan.

Cardiomorpha ovata. See *Dexiobia ovata*.**Cardiomorpha parvirostris** White.

1862. *Cardiomorpha (Cardiopsis?) parvirostris*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 31.

Cardiomorpha pellensis Worthen.

1884. *Cardiomorpha? pellaensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 16.
 St. Louis L. S.: Pella, Iowa.
 1890. *Cardiomorpha? pellensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 126, pl. 19, figs. 9-9b.
 St. Louis Group: Pella, Iowa.

Cardiomorpha radiata. See *Cardiopsis radiata*.**Cardiomorpha rhomboidea** Swallow.

1858. *Cardiomorpha? rhomboidea*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 191.
 Lower Permian: Near Council Grove, Kansas.

Cardiomorpha rhomboidea Hall. See *Cardiomorpha subrhomboidea*.**Cardiomorpha subglobosa** Meek.

1875. *Cardiomorpha subglobosa*. Meek, Pal. Ohio, vol. 2, p. 304, pl. 15, figs. 6a, b.
 Waverly Group: Rushville, Ohio.

Cardiomorpha subrhomboidea Hall.

1858. *Cardiomorpha (?) rhomboidea*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 523. (Not *C. rhomboidea* Swallow, 1858.)
 Chemung Group: Burlington, Iowa.
 1877. *Cardiomorpha subrhomboidea*. Hall, 1st edit. Miller's Am. Pal. Fauna, p. 188.

Cardiomorpha triangulata Swallow.

1860. *Cardiomorpha (?) triangulata*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 655.
 Chouteau L. S.: Cooper County, Missouri.
 1894. *Cardiomorpha triangulata*. Keyes, Mo. Geol. Surv., vol. 5, p. 131.
 Chouteau L. S.: Cooper County, Missouri.

Cardiomorpha trigonalis Winchell.

1863. *Cardiomorpha trigonalis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 15.
 Yellow S. S.: Burlington, Iowa.

Cardiomorpha vindobonensis Hartt.

1868. *Cardiomorpha Vindobonensis*. Hartt, Dawson's Acad. Geol., p. 304, fig. 109.
 Carboniferous L. S.: Nova Scotia.

Cardiomorpha (species undetermined).

1859. *Cardiomorpha* sp. (?) Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 398.
 White Permian L. S.: Guadalupe Mountains.

CARDIOPSIS Meek and Worthen, 1861.

Cardiopsis crenistriata. See *Pterinea crenistriata*.

Cardiopsis jejuna Winchell.

1862. *Cardiopsis jejuna*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 417.
Marshall Group: 3 miles north of Napoleon, Jackson County, Michigan.

Cardiopsis megambonata Winchell.

1862. *Cardiopsis megambonata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 417.
Marshall Group: Point aux Barques, Michigan.
1863. *Cardiopsis megambonata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 17.
Yellow S. S.: Burlington, Iowa.

Cardiopsis ovata. See *Dexiobia ovata*.

Cardiopsis radiata Meek and Worthen.

1860. *Cardiomorpha radiata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil. p. 458.
Goniatite Beds: Rockford, Indiana.
1860. *Megambonia lyoni*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 110.
Goniatite L. S.: Rockford, Indiana.
1866. *Cardiopsis radiata*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 157, pl. 14, figs. 6a, b.
Goniatite Bed: Rockford, Indiana.
Kinderhook Group: Grafton, Illinois.
1885. *Cardiopsis radiata*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 433, pl. 70, fig. 25.
Kinderhook Group: Rockford, Indiana.

CARDIUM Linnæus, 1758.

Cardium lexingtonensis Swallow.

1858. *Cardium (?) Lexingtonensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 206.
Middle Coal Measures: Lexington, Missouri.

Cardium napoleonense. See *Conocardium napoleonense*.

CATILLOCRINUS Troost, 1850.

Catillocrinus bradleyi Meek and Worthen.

1866. *Catillocrinus Bradleyi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 343.
Keokuk Group: Crawfordsville, Indiana.
1873. *Catillocrinus Bradleyi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 504, pl. 14, fig. 10.
Keokuk Group: Crawfordsville, Indiana.

Catillocrinus tennesseæa Shumard.

1866. *Catillocrinus Tennesseeæa*. Shumard, Trans. St. Louis Acad. Sci., vol. 2, p. 358.
Blue Marl (Keokuk): Button-mould Knobs, Kentucky; White's Creek Springs, Tennessee.

Catillocrinus wachsmuthi Meek and Worthen.

1866. *Synbathocrinus Wachsmuthi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 251.
Upper Burlington L. S.: Burlington, Iowa.
1868. *Catillocrinus Wachsmuthi*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 465, pl. 18, fig. 5.
Burlington Group: Burlington, Iowa.

CENTRONELLA Billings, 1850.***Centronella allei* Winchell.**

1865. *Centronella Allei*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 123.
Bed No. 6: Burlington, Iowa; also near Hamburg, Illinois, and at Talmadge,
Summit County, Ohio.

Centronella anna*. See *Harttina anna*.**Centronella crassiscardinalis* Whitfield.**

1882. *Centronella crassiscardinalis*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1,
p. 55, pl. 6, figs. 50-52.
St. Louis Group: Spergen Hill, Indiana.
1883. *Centronella crassiscardinalis*. Hall, 12th Rep. Geol. Surv. Ind., pl. 29, figs. .
50-52.
St. Louis Group: Spergen Hill, Indiana.

***Centronella flora* Winchell.**

1870. *Centronella? Flora*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 254.
Waverly Group: Sciotoville, Ohio.

Centronella julia*. See *Romingerina julia*.**Centronella* (species undetermined).**

1888. *Centronella* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 2, figs. 4, 8.
Waverly Group: Licking County, Ohio.

CERATIOCARIS McCoy, 1849.***Ceratiocaris bradleyi* Meek. See *Colpocaris bradleyi*.*****Ceratiocaris elytroides* Meek. See *Colpocaris elytroides*.*****Ceratiocaris? sinuata* Meek and Worthen.**

1868. *Ceratiocaris? sinuatus*. Meek and Worthen, Am. Jour. Sci. (2), vol. 46, p. 22.
Coal Measures: Near Mazon Creek, Grundy County, Illinois.
1868. *Ceratiocaris? sinuatus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 540,
fig. A.
Coal Measures: Waupecan Creek, Grundy County, Illinois.

Ceratiocaris striata* Meek. See *Solenocaris strigata*.*CERIOCRINUS White, 1880.*****Ceriocrinus craigii* Worthen.**

1875. *Eupachycrinus Craigii*. Worthen, Geol. Surv. Ill., vol. 6, p. 527, pl. 32,
fig. 1.
Coal Measures: Vandalia, Illinois.

***Ceriocrinus fayettensis* Worthen.**

1873. *Eupachycrinus Fayetteensis*. Worthen, Geol. Surv. Ill., vol. 5, p. 565, pl. 24,
fig. 10.
Upper Coal Measures: Hickory Creek, Fayette County, Illinois.

***Ceriocrinus hemisphericus* Shumard.**

1858. *Poteriocrinus hemisphericus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1,
p. 221.
Coal Measures: Hinkston Creek, Boone County, and near Lexington, Mis-
souri; headwaters of Verdigris River, and 9 miles southwest of Council
Grove, Kansas.
1872. *Scaphiocrinus? hemisphericus*. Meek, U. S. Geol. Surv. Nebr., p. 147, pl. 5,
figs. 1a, b; pl. 7, figs. 1a-c.
Upper Coal Measures: Nebraska City, Bennett's Mill, and Omaha, Nebraska.
Coal Measures: Iowa; Kansas; Illinois.

Ceriocrinus hemisphericus Shumard—Continued.

1873. *Scaphiocrinus? hemisphericus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 561, pl. 24, fig. 5.
Upper Coal Measures: Springfield and Lasalle, Illinois.
1890. *Delocrinus hemisphericus*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 12, pl. 2, figs. 8-10.
Upper Coal Measures: Kansas City, Missouri.
1890. *Delocrinus hemisphericus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 335, pl. 2, figs. 8-10; p. 370, pl. 10, fig. 5.
Upper Coal Measures: Kansas City, Missouri.
1894. *Ceriocrinus hemisphericus*. Keyes, Mo. Geol. Surv., vol. 4, p. 220, pl. 28, figs. 2, 5.
Upper Coal Measures; Lexington, Columbia, and Kansas City, Missouri.

Ceriocrinus inflexus Geinitz.

1866. *Cyathocrinus inflexus*. Geinitz, Carb. und Dyas in Nebr., p. 62, tab. 4, figs. 20-22.
Nebraska City, Nebraska.
1876. *Scaphiocrinus carbonarius*. White, Powell's Rep. Geol. Uinta Mts., p. 89.
(Not *S. carbonarius*, M. & W., 1861.)
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1880. *Erisocrinus (Ceriocrinus) inflexus*. White, Cont. to Inv. Pal., No. 6, p. 128, pl. 34, figs. 9a, b.
Middle Carboniferous: Confluence of Grand and Green rivers, Utah.
1897. *Erisocrinus (Ceriocrinus) inflexus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 26.
Upper Coal Measures: Poteau Mountain, Indian Territory.

Ceriocrinus missouriensis Miller and Gurley.

1890. *Delocrinus missouriensis*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 14, pl. 2, figs. 11-13.
Upper Coal Measures: Kansas City, Missouri.
1890. *Delocrinus missouriensis*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 336, pl. 2, figs. 11-13.
Upper Coal Measures: Kansas City, Missouri.

Ceriocrinus planus White.

1880. *Erisocrinus planus*. White, Proc. U. S. Nat. Mus., vol. 2, p. 257, pl. 1, figs. 6, 7.
Upper Coal Measures: 30 miles west of Humboldt, Kansas.
1880. *Erisocrinus (Ceriocrinus) planus*. White, Cont. to Inv. Pal., No. 6, p. 127, pl. 35, figs. 5a, b.
Upper Coal Measures: 30 miles west of Humboldt, Kansas.

CHÆNOCARDIA Meek and Worthen, 1869.**Chænocardia ovata Meek and Worthen.**

1869. *Chænocardia ovata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 170.
Lower Coal Measures: West Pecan Creek, Grundy County, Illinois.
1873. *Chænocardia ovata*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 586, pl. 27, fig. 5.
Coal Measures: Waupecan Creek, Grundy County, Illinois.

CHÆNOMYA Meek, 1864.**Chænomya cooperi Meek and Hayden.**

1858. *Panopea Cooperi*. Meek and Hayden, Trans. Albany Inst., vol. 4, p. 83.
Permian: Helena, Kansas.

Chaenomya cooperi Meek and Hayden—Continued.

1858. *Allorisma? cooperi*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 264.
Upper Coal Measures: Near Helena, Kansas.

1864. *Chaenomya cooperi*. Meek and Hayden, Pal. Upper Mo., p. 44, pl. 2,
figs. 2a, b.

Coal Measures: Helena, Kansas.

Chaenomya hybrida. See *Allorisma hybridum*.**Chaenomya leavenworthensis** Meek and Hayden.

1858. *Allorisma? leavenworthensis*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil.,
p. 263.

Coal Measures: Leavenworth, Kansas.

1864. *Chaenomya leavenworthensis*. Meek and Hayden, Pal. Upper Mo., p. 43, pl. 2,
figs. 1a-c.

Coal Measures: Leavenworth City, Kansas.

1872. *Chaenomya Leavenworthensis*. Meek, U. S. Geol. Surv. Nebr., p. 216, pl. 2, fig. 9.
Upper Coal Measures: Rock Bluff, Nebraska; Leavenworth, Kansas.

Coal Measures: Iowa, Missouri, Illinois.

1894. *Chaenomya leavenworthensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 131.

Upper Coal Measures: Kansas City, Missouri.

Chaenomya longa Miller and Gurley.

1896. *Chaenomya longa*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist.,
p. 8, pl. 1, figs. 12, 13.

Chouteau L. S.: Near Sedalia, Missouri.

Chaenomya maria Worthen.

1882. *Chaenomya maria*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 39,
Upper Coal Measures: Shawnee County, Kansas.

1883. *Chaenomya maria*. Worthen, Geol. Surv. Ill., vol. 7, p. 319, figs. 1a, b.

Upper Coal Measures: Shawnee County, Kansas.

Chaenomya minnehaha Swallow.

1858. *Allorisma (?) Minnehaha*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 194.
Middle Coal Measures: Near Lexington, Missouri.

Permian: Valley of Cottonwood, Kansas.

1864. *Chaenomya Minnehaha*. Meek and Hayden, Pal. Upper Mo., p. 43.

1872. *Chaenomya Minnehaha*. Meek, U. S. Geol. Surv. Nebr., p. 217, pl. 2, figs. 13a, b.

Upper Coal Measures: Plattsmouth, Nebraska.

Middle Coal Measures: Lexington, Missouri.

1873. *Chaenomya Minnehaha*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 588,
pl. 27, fig. 3.

Upper Coal Measures: Clinton County, Illinois.

1894. *Chaenomya minnehaha*. Keyes, Mo. Geol. Surv., vol. 5, p. 130.

Upper Coal Measures: Kansas City, Missouri.

Chaenomya rhomboidea Meek and Worthen.

1865. *Chaenomya? rhomboidea*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 250.

St. Louis L. S.: Alton, Illinois.

1873. *Chaenomya? rhomboidea*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 540,
pl. 22, fig. 4.

St. Louis L. S.: Near Alton, Illinois.

CHÆTETES Fischer, 1837.**Chaetetes carbonaria** Worthen. See *Stenopora carbonaria*.**Chaetetes decipiens** Rominger.

1866. *Chaetetes decipiens*. Rominger, Proc. Acad. Nat. Sci. Phil., p. 116.

Keokuk Group: Lagrange, Missouri.

Chaetetes mackrothii Geinitz.

1859. *Chaetetes Mackrothii*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 387.
Dark Permian L. S.: Guadalupe Mountains.

Chaetetes milleporaceus Milne-Edwards and Haime.

1851. *Chaetetes milleporaceus*. Milne-Edwards and Haime, Monog. des Polyp. Foss., p. 272.
Carboniferous: Cumberland Mountains, Tennessee; Newberg, near Evansville on the Ohio.
1860. *Chaetetes milleporaceus*. Milne-Edwards, Hist. Nat. des Corr., vol. 3, p. 271.
Carboniferous: United States.
1876. *Chaetetes milleporaceus*. White, Powell's Geol. Rep. Uinta Mts., p. 88.
Red Wall Group: Gypsum Canyon, Colorado River, Utah.
Lower Aubrey Group: Split Mountain Canyon, Green River, Utah.
1877. *Chaetetes milleporaceus*. White, U. S. Geol. Surv., W. 100 Merid., vol. 4, p. 98, pl. 6, fig. 2a.
Carboniferous: Virgin Range, southwest of St. George, Utah.
1894. *Chaetetes milleporaceus*. Keyes, Mo. Geol. Surv., vol. 4, p. 123, pl. 14, figs. 12a, b.
Upper Coal Measures: Glasgow, Missouri.

Chaetetes tumidus Phillips.

1836. *Calamopora tumida*. Phillips, Geol. Yorkshire, vol. 2, p. 200, pl. 1, figs. 49-57.
Carboniferous: England.
1868. *Chaetetes tumidus*. Dawson, Acad. Geol., p. 288, fig. 85b.
Carboniferous L. S.: Stewiacke, Windsor, and Cape Breton.

Chaetetes (species undetermined).

1859. *Chaetetes* sp. (?). Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 388.
White Permian L. S.: Guadalupe Mountains.
1877. *Chaetetes* (?) species. Whiteaves, Geol. Surv. Canada, Rep. of Prog., 1875-76, p. 97.
Carboniferous or Permian: Rear of Fort St. James, Stewart's Lake, British Columbia.
1877. *Chaetetes* (?) species. Whiteaves, Geol. Surv. Canada, Rep. of Prog., 1875-76, p. 99.
Devonian or Carboniferous: Fossil Point, Peace River, Canada.
1878. *Chaetetes* sp. allied to *C. tumidus* (Phill.). Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 610.
Carboniferous: Feilden Isthmus, latitude 82° 43'.

CHAINODICTYON Foerste, 1887.**Chainodictyon laxum** Foerste.

1887. *Chainodictyon laxum*. Foerste, Bull. Den. Univ., vol. 2, pp. 81 and 87, pl. 7, figs. 8a-c.
Coal Measures: Flint Ridge, Ohio; Seville, Illinois.
1888. *Chainodictyon laxum*. Foerste, Bull. Den. Univ., vol. 3, p. 135.

Chainodictyon laxum, var *minor* Ulrich.

1890. *Chainodictyon laxum*, var. *minor*. Ulrich, Geol. Surv. Ill., vol. 8, p. 640, pl. 62, figs. 3, 3a.
Lower Coal Measures: Seville, Illinois.

CHEILOTRYPA Ulrich, 1884.**Cheilotrypa hispida** Ulrich.

1884. *Cheilotrypa hispida*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 50, pl. 3, figs. 6-6d.
Kaskaskia Group: Tateville, Kentucky.

(CHEIROCRINUS Hall, 1860.)

- Cheirocrinus ductylus*. See *Halysiocrinus ventricosus*.
Cheirocrinus lamellosus. See *Oalceocrinus lamellosus*.
Cheirocrinus nodosus. See *Halysiocrinus ventricosus*.
Cheirocrinus perplexus. See *Halysiocrinus perplexus*.
Cheirocrinus ventricosus. See *Halysiocrinus ventricosus*.

CHELIPHLEBIA Scudder, 1885.

Cheliphlebia carbonaria Scudder.

1885. *Cheliphlebia carbonaria*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 328, pl. 30, fig. 8.
Carboniferous: Mazon Creek, Illinois.
1890. *Cheliphlebia carbonaria*. Scudder, Foss. Insc. N. A., vol. 1, p. 292, pl. 16, fig. 8.
Carboniferous: Mazon Creek, Illinois.

Cheliphlebia elongata Scudder.

1885. *Cheliphlebia elongata*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 328, pl. 29, fig. 7.
Carboniferous: Mazon Creek, Illinois.
1890. *Cheliphlebia elongata*. Scudder, Foss. Insc. N. A., vol. 1, p. 292, pl. 15, fig. 7.
Carboniferous: Mazon Creek, Illinois.

(CHEMNITZIA D'Orbigny, 1837.)

- Chemnitzia attenuata* Stevens. See *Loxonema attenuata*.
Chemnitzia parva Cox. See *Loxonema parva*.
Chemnitzia swallovia Shumard. See *Loxonema swallovia*.
Chemnitzia tenuilineata Shumard. See *Loxonema tenuilineata*.

CHITON Linnæus, 1758.

Chiton carbonarius Stevens.

1858. *Chiton carbonarius*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 264.
Coal Measures: Danville, Illinois.
1873. *Chiton carbonarius*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 608, pl. 29, fig. 15.
Coal Measures: Danville, Illinois.

Chiton parvus Stevens.

1858. *Chiton parvus*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 264.
Archimedes L. S.: Bergen Hill, Indiana.

CHOLASTER Worthen and Miller, 1883.

Cholaster peculiaris Worthen and Miller.

1883. *Cholaster peculiaris*. Worthen and Miller, Geol. Surv. Ill., vol. 7, p. 329, pl. 31, figs. 4a, b.
Chester L. S.: Okaw Bluffs, between Chester and Kaskaskia, Randolph County, Illinois.

CHONETES Fischer, 1837.

Chonetes fischeri. See *Chonopectus fischeri*.*Chonetes flemingi*. See *Chonetes variolatus*.*Chonetes geinitzianus*. See *Chonetes glaber*.*Chonetes geniculatus* White.

1862. *Chonetes geniculata*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 29.
Chemung Group: Burlington, Iowa (?); Hamburg, Illinois; Clarksville, Missouri.
1865. *Chonetes geniculata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 116.
Marshall Group: Rockford, Indiana.
1870. *Chonetes geniculata?* Winchell, Proc. Am. Phil. Soc., vol. 11, p. 250.
Waverly Group: Rockville, Ohio.
1894. *Chonetes geniculatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 53, pl. 38, fig. 3.
Louisiana L. S.: Louisiana and Clarksville, Missouri.

Chonetes glaber Geinitz.

1866. *Chonetes glabra*. Geinitz, Carb. und Dyas in Nebr., p. 60, tab. 4, figs. 15-18.
(Not *C. glaber* Hall, 1857.)
Dyas: Nebraska City, Nebraska.
1872. *Chonetes glabra*. Meek, U. S. Geol. Surv. Nebr., p. 171, pl. 4, fig. 10; pl. 8, figs. 8a, b.
Upper Coal Measures: Nebraska City, Nebraska; Atchison, Kansas.
1874. *Chonetes glabra*. Derby, Bull. Cornell Univ. (Science), vol. 1, No. 2, p. 43, pl. 8, figs. 11, 14, 15, 19.
Coal Measures: Bomjardim and Itaituba, Brazil, and Cochabamba, Bolivia.
1888. *Chonetes larvis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 229, pl. 12, figs. 3a, b.
Lower Coal Measures: Des Moines, Iowa.
1889. *Chonetes geinitzianus*. Miller, N. A. Geol. and Pal., p. 339.
1891. *Chonetes larvis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 246.
Lower Coal Measures: Des Moines, Iowa.
1892. *Chonetes larvis*. Keyes, Proc. Iowa Acad. Sci., vol. 1, pt. 2, p. 22.
Lower Coal Measures: Near Des Moines, Iowa.
1894. *Chonetes larvis*. Keyes, Mo. Geol. Surv., vol. 5, p. 55, pl. 37, figs. 5a, b.
Upper Coal Measures: Kansas City, Mo.

Chonetes granulifer Owen.

1852. *Chonetes granulifera*. Owen, Geol. Rep. Wis., Iowa, and Minn., p. 583, tab. 5, fig. 12.
Carboniferous L. S.: Near mouth of Keg Creek.
1855. *Chonetes Smithii*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 24, pl. 2, figs. 2a-c.
Coal Measures: Belleville, Illinois.
1855. *Chonetes granulifera*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 24.
Coal Measures: Belleville, Illinois; Keg Creek, Missouri.
1858. *Chonetes mucronata*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 262.
(Not *C. mucronatus* Hall, 1843.)
Upper Coal Measures: Near Fort Riley, Kansas.
1859. *Chonetes mucronata*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 26.
Upper Coal Measures: Fort Riley and Cottonwood Creek, Kansas.
1864. *Chonetes mucronata*. Meek and Hayden, Pal. Up. Mo., p. 23, pl. 1, fig. 5a-c.
Coal Measures: Near Fort Riley, Kansas.
1866. *Chonetes mucronata*. Geinitz, Carb. und Dyas in Nebr., p. 58, tab. 4, figs. 12-14.
Bennett's Mill and Nebraska City, Nebraska.

Chonetes granulifer Owen—Continued.

1872. *Chonetes granulifera*. Meek, U. S. Geol. Surv. Nebr., p. 170, pl. 4, fig. 9, pl. 6, fig. 10; pl. 8, fig. 7.
Upper Coal Measures: Nebraska City, Wyoming, Bennett's Mill, Plattsmouth, Bellevue, and Omaha, Nebraska; Kansas; Missouri; Iowa.
Coal Measures: Illinois.
1873. *Chonetes Smithii*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 570, pl. 25, fig. 11.
Coal Measures: St. Clair County, Illinois.
1876. *Chonetes granulifera*. White, Powell's Rep. Geol. Uinta Mts., p. 90.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1877. *Chonetes granulifera*. White, U. S. Geol. Surv. W. 100 Merid., vol. 4, pt. 1, p. 122, pl. 9, figs. 8a-c.
Carboniferous (Upper Aubrey L. S.): Kanab Canyon, Arizona.
1892. *Chonetes Smithii*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 15B, fig. 12.
Coal Measures: Illinois.
1894. *Chonetes granulifera*. Keyes, Mo. Geol. Surv., vol. 5, p. 56.
Upper Coal Measures: Kansas City, Missouri.

Chonetes illinoisensis Worthen.

1858. *Chonetes logani*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 598, pl. 12, figs. 1a-c, 2. (Not *C. logani* N. & P., 1855.)
Burlington L. S.: Burlington, Iowa; Quincy, Illinois.
1860. *Chonetes Illinoensis*. Worthen, Trans. St. Louis Acad., vol. 1, p. 571.
Crinoidal Mountain L. S.: Quincy, Illinois.
1863. *Chonetes Illinoensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 5.
Yellow S. S. and Burlington L. S.: Burlington, Iowa.
1865. *Chonetes Illinoensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 116.
Marshall Group: Rockford, Indiana; Licking County, Ohio.
Burlington L. S.: Burlington, Iowa.
1868. *Chonetes Illinoensis*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 505, pl. 15, figs. 8a, b.
Burlington L. S.: Jersey County, Illinois; Burlington, Iowa.
Kinderhook Group: Wassonville, Iowa.
1870. *Chonetes Illinoensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 251.
Waverly Group: Rockville, Ohio.
1888. *Chonetes illinoisensis*. Herrick, Bull. Den. Univ., vol. 3, p. 35, pl. 3, fig. 21.
Waverly Group: Licking County, Ohio.
1890. *Chonetes illinoisensis*. Herrick, Bull. Geol. Soc. Am., vol. 2, p. 48, pl. 1, fig. 16.
Keokuk: Scioto County, Ohio.
1894. *Chonetes illinoisensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 53.
Lower Burlington L. S.: Louisiana and Ash Grove, Missouri.

Chonetes laevis. See *Chonetes glaber*.**Chonetes loganensis Hall and Whitfield.**

1877. *Chonetes Loganensis*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 253, pl. 4, fig. 9.
Waverly Group: Logan Canyon, Wahsatch Range, Utah.

Chonetes logani Norwood and Pratten.

1855. *Chonetes Logani*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 30, pl. 2, figs. 12a-c.
Middle portion of Mountain L. S.: Burlington, Iowa.
1865. *Chonetes Logani*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 116.
Base of Burlington L. S.: Burlington, Iowa.

Chonetes logani Norwood and Pratten.

1883. *Chonetes Logani*. Hall, Rept. N. Y. State Geol. for 1882, pl. (16) 47, fig. 25.
1888. *Chonetes logani*. Herrick, Bull. Den. Univ., vol. 3, p. 35, pl. 7, fig. 22; pl. 3, fig. 12.
Waverly Group: Licking County, Ohio.
1892. *Chonetes Logani*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 16, fig. 25.
Waverly Group: Wayne County, Ohio.
1894. *Chonetes logani*. Keyes, Mo. Geol. Surv., vol. 5, p. 53.
Burlington L. S.: Hannibal and Louisiana, Missouri.

Also see *Chonetes illinoisensis*.

Chonetes mesolobus Norwood and Pratten.

1855. *Chonetes mesoloba*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 27, pl. 2, figs. 7a-c.
Coal Measures: Belleville, Illinois; Charboniere, Missouri.
1877. *Chonetes mesoloba*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, pt. 1, p. 123, pl. 9, fig. 7a.
Carboniferous: Confluence of White Mountain and Black rivers, Arizona.
1883. *Chonetes mesoloba*. Hall, Rep. N. Y. State Geol. for 1882, pl. (16) 47, fig. 22.
1887. *Chonetes mesoloba*. Herrick, Bull. Den. Univ., vol. 2, p. 49.
Coal Measures: Flint Ridge, Ohio.
1888. *Chonetes mesoloba*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 228.
Lower Coal Measures: Des Moines, Iowa.
1892. *Chonetes mesoloba*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 20, fig. 7.
Coal Measures: Illinois.
1892. *Chonetes mesoloba*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 16, fig. 22.
Coal Measures: Illinois.
1894. *Chonetes mesoloba*. Keyes, Mo. Geol. Surv., vol. 5, p. 53.
Upper Coal Measures: Kansas City, Missouri.

Chonetes michiganensis Stevens.

1858. *Chonetes Michiganensis*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 263.
Carboniferous: Battle Creek, Michigan.

Chonetes millepunctatus. See *Aulacorhynchus millepunctatus*.

Chonetes mucronatus. See *Chonetes granuliferus*.

Chonetes multicosta Winchell.

1863. *Chonetes multicosta*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 5.
Yellow S. S. and base of Burlington L. S.: Burlington, Iowa.
1869. *Chonetes multicosta*. Winchell, Safford's Geol. of Tenn., p. 443.
Shales just above Black Shale: Hickman and Maury counties, Tennessee.
1870. *Chonetes multicosta*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 250.
Waverly Group: Hickman and Maury counties, Tennessee.

Chonetes ornatus Shumard.

1855. *Chonetes ornata*. Shumard, Geol. Rep. Mo., p. 202, pl. C, figs. 1a-c.
Chemung Group: Vandever's Falls, Cooper County, Louisiana, Hannibal, and Moniteau County, Missouri.
1894. *Chonetes ornata*. Keyes, Mo. Geol. Surv., vol. 5, p. 53, pl. 38, fig. 2.
Kinderhook Group: Hannibal, Louisiana, and Vandever's Falls, Missouri.

Chonetus parvus Shumard.

1855. *Chonetes parva*. Shumard, Geol. Rep. Mo., p. 201.
Coal Measures: Boone County, Missouri.

Chonetes permianus Shumard.

1859. *Chonetes Permiana*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 390.
Permian Conglomerate: Mouth of Delaware Creek, Texas.

Chonetes planumbonus Meek and Worthen.

1890. *Chonetes planumbona*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 450.
Keokuk L. S.: Monroe County, Illinois.
1866. *Chonetes planumbona*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 253,
pl. 18, figs. 1a-d.
Keokuk L. S.: Monroe County, Illinois.

Chonetes platynotus White.

1874. *Chonetes platynota*. White, Prelim. Rep. Inv. Foss., p. 19.
Carboniferous (Coal Measures): Near Santa Fe and near Salt Lake, New Mexico.
1876. *Chonetes platynota*. White, Powell's Rep. Geol. Uinta Mts., p. 90.
Lower Aubrey Group: Near Echo Park, Utah.
1877. *Chonetes platynota*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 121,
pl. 9, figs. 6a-c.
Carboniferous: Near Santa Fe and near Salt Lake, New Mexico.

Chonetes pulchellus Winchell.

1862. *Chonetes pulchella*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 410.
Marshall S. S.: Moscow, Jefferson, and Allen, Hillsdale County, Michigan.
1865. *Chonetes pulchella*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 115.
Marshall Group: Hillsdale, Michigan; Howland and Warren, Trumbull County, and Tallmadge, Summit County, Ohio.
1869. *Chonetes pulchella?* Winchell, Safford's Geol. of Tenn., p. 443.
Shales just above Black Shale: Hickman and Maury counties, Tennessee.
1870. *Chonetes pulchella*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 250.
Waverly Group: Tennessee; Newark, Ohio; near Shafer's, Pennsylvania.
1888. *Chonetes pulchella*. Herrick, Bull. Den. Univ., vol. 3, p. 37, pl. 3, fig. 14.
Waverly Group: Licking County, Ohio.

Chonetes scitulus Hall.

1867. *Chonetes scitula*. Hall, Pal. N. Y., vol. 4, p. 130, pl. 21, figs. 4a, b.
Hamilton Group: New York.
1888. *Chonetes scitula*. Herrick, Bull. Den. Univ., vol. 3, p. 36, pl. 1, fig. 4.
Waverly Group: Licking County, Ohio.

Chonetes setigerus Hall.

1867. *Chonetes setigera*. Hall, Pal. N. Y., vol. 4, p. 129, pl. 21, figs. 2a, b.
Hamilton Group: New York.
1883. *Chonetes setigerus*. Hall, Rep. N. Y. State Geol. for 1882, pl. (16) 47, fig. 2.
Waverly S. S.: Ohio.
1892. *Chonetes setigera*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 16, figs. 2, 5, 19.
Waverly Group: Penfield, Ohio.
Marcellus Shale: New Caledonia, Missouri.

Chonetes shumardanus De Koninck.

1847. *Chonetes shumardiana*. De Koninck, Monog. du Gen. Prod. et Chon., p. 192,
pl. 20, figs. 1a-d.
Carboniferous: Knobs of Jefferson County, Kentucky.
1855. *Chonetes Shumardiana*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil.
(2), vol. 3, p. 24.
Mountain L. S.: Button-mould Knobs, Jefferson County, Kentucky.

Chonetes smithi. See *Chonetes granulifer*.**Chonetes tumidus** Herrick.

1888. *Chonetes tumidus*. Herrick, Bull. Den. Univ., vol. 3, p. 36, pl. 2, fig. 21.
Waverly Group: Licking County, Ohio.

Chonetes variolata D'Orbigny.

1847. *Chonetes variolata*. De Koninck, Monog. du Gen. Prod. et Chon., p. 206, pl. 19, fig. 5; pl. 20, figs. 2a-l.
Carboniferous: Guernsey, Ohio; Bolivia, South America.
1852. *Chonetes variolata*. Hall, Stansb. Exped. Gt. Salt Lake, p. 410, pl. 3, figs. 1a, b.
Carboniferous: Near Weston on the Missouri River.
1855. *Chonetes variolata*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 28.
Coal Measures: Guernsey, Ohio.
1855. *Chonetes Flemingii*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 26, pl. 2, figs. 5a-e.
Ten miles northwest of Richmond, Missouri.
1859. *Chonetes Flemingi* (?). Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 390.
White Permian L. S.: Guadalupe Mountains.
1891. *Chonetes flemingi*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 247.
Lower Coal Measures: Des Moines, Iowa.
1892. *Chonetes Flemingi*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 15B, fig. 11.
Coal Measures: Illinois.
1894. *Chonetes flemingi*. Keyes, Mo. Geol. Surv., vol. 5, p. 54, pl. 38, figs. 6a, b.
Upper Coal Measures: Kansas City, Missouri.

Chonetes verneuili Norwood and Pratten.

1855. *Chonetes Verneuili*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 26, pl. 2, figs. 6a-c.
Coal Measures: Charboniere, Missouri.
1859. *Chonetes Verneuili*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 26.
Upper Coal Measures: Manhattan, Kansas.
1861. *Chonetes verneuili*. Newberry, Ives' Colo. Expl. Exped., p. 128.
Upper Carboniferous: Cherty L. S. on banks of the Colorado River, 100 miles northwest of San Francisco Mountain.
1872. *Chonetes Verneuili*. Meek, U. S. Geol. Surv. Nebr., p. 170, pl. 1, figs. 10a, b.
Upper Coal Measures: Plattsmouth, Nebr.; Kansas; Iowa; Missouri; Illinois.
1883. *Chonetes Verneuili*. Hall, Rep. N. Y. State Geol. for 1882, pl. (16) 47, figs. 20-21.
Coal Measures: Western States.
1884. *Chonetes Verneuili*. White, 13th Rep. Geol. Surv. Ind., p. 128, pl. 25 figs. 7, 8.
Coal Measures: Every county in the Coal Measures of Indiana.
1892. *Chonetes Verneuili*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 20, figs. 5, 6.
Coal Measures: Illinois.
1892. *Chonetes Verneuili*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 6, figs. 20, 21.
Coal Measures: Illinois.

Chonetes verneuili var. utahensis Meek.

1876. *Chonetes verneuili* var. *utahensis*. Meek, Simp. Expl. Gt. Basin Utah, p. 348, pl. 2, figs. 2a-c.
Humboldt Mountains.

Chonetes (species undetermined).

1888. *Chonetes* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 3, fig. 13; pl. 7, fig. 15; pl. 8, figs. 19, 23.
Waverly Group: Licking County, Ohio.

Chonetes (species undetermined).

1888. *Chonetes* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 26, 40.
Waverly Group: Cuyahoga Falls, Ohio.

CHONOPECTUS Hall, 1892.*Chonopectus fischeri* Norwood and Pratten.

1855. *Chonetes Fischeri*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 25, pl. 2, fig. 3.
Base of Mountain L. S.: Burlington, Iowa.
1858. *Chonetes fischeri*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 517, pl. 7, figs. 1a-c.
Chemung Group: † Burlington, Iowa.
1869. *Chonetes Fischeri*. Winchell, Safford's Geol. of Tenn., p. 443.
Shales just above Black Shale: Hickman and Maury counties, Tennessee.
1870. *Chonetes Fischeri*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 250.
Waverly Group: Tennessee.
1883. *Chonetes Fischeri*. Hall, Rep. N. Y. State Geol. for 1882, pl. (16) 47, figs. 17, 31.
Waverly Group: Burlington, Iowa.
1892. *Chonopectus Fischeri*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 20, figs. 24-27.
Yellow S. S.: Burlington, Iowa.
Waverly Group: Warren, Pennsylvania.
1892. *Chonopectus Fischeri*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 15B, figs. 20-23; pl. 16, figs. 17, 31.
Yellow S. S.: Burlington, Iowa.

CHONOPHYLLUM Edwards and Haime, 1850.*Chonophyllum sedaliense* White.

1880. *Chonophyllum sedaliense*. White, Cont. to Pal. No. 8, p. 157, pl. 39, fig. 1a.
Top of Chouteau L. S.: Sedalia, Missouri.
1894. *Chonophyllum sedaliense*. Keyes, Mo. Geol. Surv., vol. 4, p. 116, pl. 14, fig. 9.
Chouteau L. S.: Sedalia, Missouri.

CHRESTOTES Scudder, 1868.*Chrestotes lapidea* Scudder.

1868. *Chrestotes lapidea*. Scudder, Geol. Surv. Ill., vol. 3, p. 567, fig. 2.
Carboniferous: Mazon Creek, Grundy County, Illinois.
1885. *Chrestotes lapidea*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 341, pl. 31, fig. 2.
Carboniferous: Mazon Creek, Illinois.
1890. *Chrestotes lapidea*. Scudder, Foss. Insc. N. A., vol. 1, p. 305, pl. 17, fig. 2.
Carboniferous: Mazon Creek, Illinois.

CIDAROSPONGIA Gurley, 1884.*Cidarospongia ella* Gurley.

1884. *Cidarospongia Ella*. Gurley, New Carb. Foss., Bull. No. 2, p. 4.
Coal Measures: Near Springfield, Illinois.

(CLEISTOPORA.)

Cleistopora placenta Keyes. See *Leptopora typa*.

Cleistopora typa Keyes. See *Leptopora typa*.

CLEODICTYA Hall, 1884.

Cleodictya gloriosa Hall.

1884. *Cleodictya gloriosa*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 479.
Keokuk Group: Crawfordsville, Indiana.

Cleodictya ? mohri Hall.

1884. *Cleodictya ? Mohri*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 479.
Keokuk Group: Crawfordsville, Indiana.

(CLIDOPHORUS Hall, 1847.)

Clidophorus occidentalis. See *Modiola subelliptica*.

Clidophorus pallasi. See *Pleurophorus occidentalis*.

Clidophorus solenoides. See *Solenopsis solenoides*.

CLINOPISTHA Meek and Worthen, 1870.

Clinopistha radiata Hall.

1858. *Edmondia ? radiata*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 716, pl. 29, fig. 3.
Coal Measures.
1884. *Clinopistha radiata*. White, 13th Rep. Geol. Surv. Ind., p. 147, pl. 31, figs. 6, 7.
Upper Coal Measures: Indiana.
1887. *Clinopistha radiata*. Herrick, Bull. Den. Univ., vol. 2, p. 34, pl. 3, fig. 11.
Coal Measures: Flint Ridge, Ohio.
1888. *Clinopistha radiata*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 233.
Lower Coal Measures: Des Moines, Iowa.
1890. *Clinopistha radiata*. Worthen, Geol. Surv. Ill., vol. 8, p. 122, pl. 19, fig. 3; pl. 21, fig. 2.
Coal Measures: Mercer County, Illinois.
1894. *Clinopistha radiata*. Keyes, Mo. Geol. Surv., vol. 5, p. 124, pl. 46, figs. 11a, b.
Lower Coal Measures: Clinton, Missouri.

Clinopistha radiata var. lævis Meek and Worthen.

1870. *Clinopistha radiata* var. *lævis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 44.
Lower Coal Measures: Seaville County, Illinois.
1873. *Clinopistha radiata* var. *lævis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 584, pl. 27, fig. 7.
Coal Measures: Fulton County and Springfield, Illinois.

CLEIOTHYRIS King, 1850.

Cleiothyris clintonensis Swallow.

1863. *Spirigera Clintonensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 89.
Second Archimedes L. S.: Chester, Illinois; Ste. Genevieve and Cooper counties, Missouri.

Cleiothyris crassiscardinalis White.

- *1860. *Athyris crassiscardinalis*. White, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 229.
Kinderhook: Burlington, Iowa.

Cleiothyris hirsuta Hall.

1856. *Spirigera hirsuta*. Hall, Trans. Albany Inst., vol. 4, p. 8.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana; Alton, Illinois.
1882. *Athyris hirsuta*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 49, pl. 6, figs. 18-21.
St. Louis Group: Spergen Hill, Paynter's Hill, and Bloomington, Indiana; Alton, Illinois.

Cleiothyris hirsuta Hall—Continued.

1883. *Athyris hirsuta*. Hall, 12th Rep. Geol. Surv. Ind., p. 328, pl. 29, figs. 18-21.
St. Louis Group: Alton, Illinois; Spergen Hill, Lanesville, and Bloomington, Indiana.
1884. *Athyris hirsuta*. Walcott, Pal. Eureka Dist., p. 222, pl. 18, fig. 5.
Lower Carboniferous: Eureka District, and at Coal Hill, Pancake Range, Nevada.
1895. *Cleiothyris hirsuta*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 46, figs. 25-28.
St. Louis L. S.: Bloomington, Indiana.

Cleiothyris missouriensis Swallow.

1860. *Spirigera Missouriensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 650.
Coal Measures: Montgomery and Chariton counties, Missouri.

Cleiothyris obmaxima McChesney.

1861. *Athyris obmaxima*. McChesney, Desc. New Spec. Foss., p. 80.
Keokuk Limestone: Nauvoo and Warsaw, Illinois; Keokuk, Iowa.
1874. *Spirigera obmaxima*. White, Prelim. Rep. Inv. Foss., p. 17.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada, and below Ophir City, Nevada.
1877. *Spirigera obmaxima*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 92, pl. 5, fig. 12.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.

Cleiothyris obvia McChesney.

1861. *Athyris obvia*. McChesney, Desc. New Spec. Foss., p. 81.
Kaskaskia Limestone: Kaskaskia, Illinois.

Cleiothyris orbicularis McChesney.

1860. *Athyris orbicularis*. McChesney, Desc. New Pal. Foss., p. 47.
Coal measures: Western States.

Cleiothyris reflexa Swallow.

1863. *Spirigera reflexa*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 88.
Warsaw L. S.: Barrett's Station, St. Louis County, Missouri.

Cleiothyris roissyi L'Eveille.

1858. *Terebratula roysii*. Marcou, Geol. N. A., p. 51, pl. 6, figs. 10, 10b.
Mountain L. S.: Salt Lake City, Utah; El Paso, Chihuahua; headwaters of Rio Colorado Chiquito.
1858. *Athyris sublamellosa*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 702, pl. 27, figs. 1a-c.
Kaskaskia L. S.: Chester, Illinois: Crittenden County, Kentucky.
1858. *Terebratula plano-sulcata*. Marcou, Geol. N. A., p. 52, pl. 6, figs. 8, 8b.
Mountain L. S.: Tigras, New Mexico; Ohio; Indiana; Illinois; Kentucky; Arkansas.
1860. *Athyris parvirostra*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 451.
Keokuk L. S.: Near Warsaw, Illinois.
1863. *Spirigera pectinifera*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 88.
Geode Beds: Keokuk, Iowa.
1863. *Spirigera Americana*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 89.
Second Archimedes L. S.: Chester, Illinois; St. Mary's, Missouri.
1866. *Athyris planosulcata*?. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 254, pl. 18, figs. 8a-d.
Keokuk Group: Near Warsaw, Illinois.
1874. *Athyris sublamellosa*. Derby, Bull. Cornell Univ. (Science), vol. 1, No. 2, p. 10, pl. 2, figs. 9-12; pl. 3, figs. 15, 21, 29; pl. 6, fig. 16; pl. 9, figs. 5, 6.
Coal Measures: Bomjardim and Itaituba, Brazil.

Cleiothyris roissyi L'Eveille—Continued.

1877. *Spirigera planosulcata*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 143, pl. 10, figs. 5a-d.
Carboniferous: Santa Fé, New Mexico; Rush Creek, Lake County, Colorado.
1877. *Athyris planosulcata*. ? Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 257, pl. 18, figs. 8a-d.
Lower Carboniferous L. S. (Waverly?): Cottonwood Divide, 800 feet east of Reed & Benson's Mine, Wahsatch Range, Utah.
1877. *Athyris Roissyi*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 82, pl. 9, figs. 3-3b.
Carboniferous, L. S.: Ruby Group; Wachoe Mountains; Mahogany Peak; Egan Range, Nevada.
1894. *Athyris sublamellosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 92.
Kaskaskia L. S.: Ste. Mary, Missouri.
1894. *Cleiothyris Roysii*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 35, figs. 9, 10.
Keokuk Group: Keokuk, Iowa.
Chester L. S.: Jackson County, Kentucky.
1895. *Cleiothyris Roysii*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 46, figs. 23, 24.
Keokuk Group: Keokuk, Iowa.
Chester L. S.: Jackson County, Kentucky.

Cleiothyris squamosa Worthen.

1884. *Athyris squamosa*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 24.
Oolitic beds of St. Louis L. S.: Monroe County, Illinois.
1890. *Athyris squamosa*. Worthen, Geol. Surv. Ill., vol. 8, p. 103, pl. 11, fig. 2.
St. Louis Oolitic L. S.: Monroe County, Illinois.

CLISIOPHYLLUM Dana, 1848.**Clisiophyllum gabbi Meek.**

1884. *Clisiophyllum Gabbi*. Meek, Pal. Cal., vol. 1, p. 8, pl. 1, figs. 1-1b.
Carboniferous: Bass's Ranch, Shasta County, California.

Clisiophyllum tumulus Salter.

1855. *Clisiophyllum Tumulus*. Salter, Belcher's "Last of the Arctic Voyagers," p. 383, pl. 36, fig. 6.
Carboniferous: Depot Point.

CODASTER McCoy, 1849.**Codaster blairi Miller and Gurley.**

1895. *Codaster blairi*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 86, pl. 5, figs. 20-22.
Chouteau L. S.: Near Sedalia, Missouri.

Codaster gracillimus Rowley and Hare.

1891. *Codaster gracillimus*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 99, pl. 2, figs. 6, 7.
Lower Burlington L. S.: Louisiana, Missouri.

Codaster grandis Rowley and Hare.

1891. *Codaster grandis*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 99, pl. 2, fig. 8.
Upper Burlington Chert: Louisiana, Missouri.

Codaster graciosus Miller.

1880. *Codaster graciosus*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 257, pl. 15, figs. 5, 5a.
Keokuk Group: New Bloomfield, Missouri.

Codaster jessiae Miller and Gurley.

1896. *Codaster jessiae*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 89, pl. 5, figs. 20-22.

Chouteau L. S.: Sedalia, Missouri.

Codaster whitei. See *Orophocrinus whitei*.

(CODONITES Meek and Worthen, 1869.)

Codonites campanulatus. See *Orophocrinus campanulatus*.

Codonites gracilis. See *Orophocrinus gracilis*.

Codonites inopinatus. See *Orophocrinus inopinatus*.

Codonites stelliformis. See *Orophocrinus stelliformis*.

CÆLIOCRINUS White, 1893.

Cæliocrinus cariniferus Worthen.

1873. *Zeacrinus cariniferus*. Worthen, Geol. Surv. Ill., vol. 5, p. 535, pl. 20, fig. 4.
St. Louis L. S.: Near Huntsville, Alabama.

Cæliocrinus dilatatus Hall.

1861. *Poteriocrinus dilatatus*. Hall, Desc. New Spec. Crin., p. 6.

Burlington, L. S.

1861. *Poteriocrinus dilatatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 300.

Burlington L. S.: Burlington, Iowa.

1893. *Cæliocrinus dilatatus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 33,
pl. 3, fig. 18.

Burlington L. S.: Burlington, Iowa.

Cæliocrinus lyra Meek and Worthen.

1869. *Zeacrinus lyra*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 152.

Upper Burlington L. S.: Burlington, Iowa.

1873. *Zeacrinus lyra*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 432, pl. 1,
fig. 11.

Burlington L. S.: Burlington, Iowa.

Cæliocrinus subspinosus White.

1862. *Cæliocrinus subspinosus*. White, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 501.

Burlington L. S.: Burlington, Iowa.

Cæliocrinus ventricosus Hall.

1861. *Poteriocrinus ventricosus*. Hall, Desc. New Crin., p. 6.

Burlington L. S.

1861. *Poteriocrinus ventricosus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 301.

Burlington, L. S.: Burlington, Iowa.

CÆLOCONUS Ulrich, 1890.

Cæloconus granosus Ulrich.

1890. *Cæloconus granosus*. Ulrich, Geol. Surv. Ill., vol. 8, p. 665, pl. 72, figs. 3-3b.

Chester Group: Near Anna, Illinois.

Cæloconus rhombicus Ulrich.

1890. *Cæloconus rhombicus*. Ulrich, Geol. Surv. Ill., vol. 8, p. 664, pl. 72, figs. 4-4c.

St. Louis Group: Fountain Creek, Monroe County, Illinois.

(CÆLOCRINUS Meek and Worthen, 1865.)

Cælocrinus concavus. See *Aorocrinus concavus*.

COLEOLUS Hall, 1879.

Coleolus herzeri Hall.

1888. *Coleolus Herzeri*. Hall, Pal. N. Y., vol. 5, pt. 2, Supp. p. 7, pl. 114, fig. 29.
Waverly Group: Medina County, Ohio.

COLOCERAS Hyatt, 1893.

Coloceras globatus Meek and Worthen.

1866. *Nautilus globatus?* Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 305, pl. 24, figs. 5a, b.
Chester Group: Chester, Illinois.
1893. *Nautilus globatus*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 453.

Coloceras globulare Hyatt.

1893. *Coloceras globulare*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 452, figs. 25-27.
Carboniferous: Military Crossing, Baylor County, Texas.

COLPOCARIS Meek, 1872.

Colpocaris bradleyi Meek.

1872. *Ceratiocaris (Colpocaris) bradleyi*. Meek, Proc. Acad. Nat. Sci. Phil. (for 1871), p. 332.
Base of Waverly Group: Danville, Kentucky.
1875. *Ceratiocaris (Colpocaris) Bradleyi*. Meek, Pal. Ohio, vol. 2, p. 318, pl. 18, figs. 6a-e.
Waverly Group: Danville, Kentucky.

Colpocaris chesterensis Worthen.

1884. *Colpocaris chesterensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 3.
Lower Chester L. S.: Chester, Illinois.
1890. *Colpocaris chesterensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 153, pl. 28, fig. 2.
Chester L. S.: Chester, Illinois.
1894. *Colpocaris chesterensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 239.
Kaskaskia L. S.: Chester, Illinois.

Colpocaris elytroides Meek.

1872. *Ceratiocaris (Colpocaris) elytroides*. Meek, Proc. Acad. Nat. Sci. Phil. (for 1871), p. 334.
Base of Waverly Group: Danville, Kentucky.
1875. *Ceratiocaris (Colpocaris) elytroides*. Meek, Pal. Ohio, vol. 2, p. 319, pl. 18, figs. 5a-c.
Waverly Group: Danville, Kentucky.

COMPSASTER Worthen and Miller, 1883.

Compsaster formosus Worthen and Miller.

1883. *Compsaster formosus*. Worthen and Miller, Geol. Surv. Ill., vol. 7, p. 327, pl. 31, figs. 2a, b.
Chester L. S.: Okaw bluffs, between Chester and Kaskaskia, Randolph County, Illinois.

CONCHIDIUM Linné, 1753.

Conchidium salinensis Swallow.

1860. *Pentamerus Salinensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 652.
Base of Chemung: Moniteau County, Missouri.

CONOCARDIUM Bronn, 1835.

Conocardium acadianum Dawson.

1868. *Conocardium Acadianum*. Dawson, Acad. Geol., p. 304, fig. 110.
Carboniferous L. S.: Windsor, Nova Scotia.

Conocardium aliforme Sowerby.

1829. *Cardium aliforme*. Sowerby, Min. Conch., vol. 6, p. 100, tab. 552, fig. 2.
1897. *Conocardium aliforme*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 37, pl. 22,
figs. 1, 2.
Lower Coal Measures: Conway County, Arkansas.

Conocardium alternistriatum Herrick.

1888. *Conocardium alternistriatum*. Herrick, Bull. Den. Univ., vol. 4, p. 42, pl. 11,
fig. 24; pl. 5, fig. 7 f.
Waverly Group: Bagdad and Burbank, Ohio.
1889. *Conocardium* (cf. *alternistriatum*). Herrick, Am. Geol., vol. 3, pl. 3, fig. 7.
Waverly Group: Moot's Run, Ohio.
1891. *Conocardium alternistriatum*. Herrick, Bull. Geol. Soc. Am., vol. 2, p. 45,
pl. 1, figs. 1-4.
Waverly Group (Cuyahoga Division): Wooster, Ohio.

Conocardium ? bovipedale Winchell.

1862. *Conocardium ? bovipedale*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 420.
Marshall Group: Marshall, Michigan.

Conocardium carinatum Hall.

1856. *Conocardium carinatum*. Hall, Trans. Alb. Inst., vol. 4, p. 14.
St. Louis L. S.: Bloomington and Spergen Hill, Indiana.
1882. *Conocardium carinatum*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 59,
pl. 7, figs. 18, 19.
St. Louis Group: Spergen Hill and Bloomington, Indiana.
1883. *Conocardium carinatum*. Hall, 12th Rep. Geol. Surv. Ind., p. 345, pl. 30,
figs. 18, 19.
St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.

Conocardium catastomum Hall.

1856. *Conocardium catastomum*. Hall, Trans. Albany Inst., vol. 4, p. 13.
St. Louis L. S.: Spergen Hill, Indiana.
1882. *Conocardium catastomum*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 58,
pl. 7, figs. 15-17a.
St. Louis Group: Spergen Hill, Indiana.
1883. *Conocardium catastomum*. Hall, 12th Rep. Geol. Surv. Ind., p. 344, pl. 30,
figs. 15-17.
St. Louis Group: Spergen Hill and Lanesville, Indiana.

Conocardium cuneatum Hall.

1856. *Conocardium cuneatum*. Hall, Trans. Albany Inst., vol. 4, p. 14.
St. Louis L. S.: Bloomington and Spergen Hill, Indiana.
1882. *Conocardium cuneatum*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 60,
pl. 7, figs. 24-26.
St. Louis Group: Spergen Hill and Bloomington, Indiana.
1883. *Conocardium cuneatum*. Hall, 12th Rep. Geol. Surv. Ind., p. 345, pl. 30,
figs. 24-26.
St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.

Conocardium equilaterale Hall.

1856. *Conocardium equilaterale*. Hall, Trans. Albany Inst., vol. 4, p. 16.
St. Louis L. S.: Spergen Hill, Indiana.
1882. *Conocardium equilaterale*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 62.
St. Louis Group.

Conocardium equilaterale Hall—Continued.

1883. *Conocardium equilaterale*. Hall, 12th Rep. Geol. Surv. Ind., p. 348.
St. Louis Group: Spergen Hill, Indiana.

Conocardium indianense Miller.

1891. *Conocardium indianense*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 94, pl. 20, fig. 10.
Keokuk Group: Crawfordsville, Indiana.
1892. *Conocardium indianense*. Miller, 17th Rep. Geol. Surv. Ind., p. 704, pl. 20, fig. 10.
Keokuk Group: Crawfordsville, Indiana.

Conocardium meekanum Hall.

1856. *Conocardium Meekanum*. Hall, Trans. Albany Inst., vol. 4, p. 15.
St. Louis L. S.: Alton, Illinois.
1882. *Conocardium Meekanum*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 61, pl. 7, figs. 21-23.
St. Louis Group: Alton, Illinois.
1883. *Conocardium meekanum*. Hall, 12th Rep. Geol. Surv. Ind., p. 347, pl. 30, figs. 21-23.
St. Louis Group: Alton, Illinois.

Conocardium napoleonense Winchell.

1862. *Cardium Napoleonense*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 419.
Marshall Group: Marshall, Battle Creek, and near Napoleon, Michigan.

Conocardium obliquum Meek and Worthen.

1865. *Conocardium obliquum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 249.
Coal Measures: Wabash Cut-off, Posey County, Indiana.
1875. *Conocardium obliquum*. Meek and Worthen, Geol. Surv. Ill., vol. 6, p. 529, pl. 33, fig. 4.
Coal Measures: Wabash cut-off, Posey County, Indiana.

Conocardium parriishi Worthen.

1890. *Conocardium parriishi*. Worthen, Geol. Surv. Ill., vol. 8, p. 112, pl. 20, fig. 7.
Upper Coal Measures (oolite): Near Kansas City, Missouri.
1894. *Conocardium parriishi*. Keyes, Mo. Geol. Surv., vol. 5, p. 124, pl. 46, figs. 6a, b.
Upper Coal Measures: Kansas City, Missouri.

Conocardium prattenanum Hall.

1856. *Conocardium Prattenanum*. Hall, Trans. Albany Inst., vol. 4, p. 15.
St. Louis L. S.: Alton, Illinois.
1882. *Conocardium Prattenanum*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 61, pl. 7, fig. 20.
St. Louis Group: Alton, Illinois.
1883. *Conocardium prattenanum*. Hall, 12th Rep. Geol. Surv. Ind., p. 346, pl. 30, fig. 20.
St. Louis Group: Alton, Illinois.

Conocardium pulchellum White and Whitfield.

1862. *Conocardium pulchellum*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 299.
Chemung Group: Burlington, Iowa.
1870. *Conocardium pulchellum*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 256.
Waverly Group: Newark, Ohio.
1888. *Conocardium pulchellum*. Herrick, Bull. Den. Univ., vol. 3, p. 97, pl. 1, fig. 12; pl. 7, figs. 39, 40f.
Waverly Group: Licking County, Ohio.

Conocardium (species undetermined).

1868. *Conocardium*. Dawson, Acad. Geol., p. 305.
Carboniferous L. S.: Stewiacke, Nova Scotia.
1877. *Conocardium* —(?) White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 94.
Subcarboniferous: Below Ophir City, Utah.
1888. *Conocardium* sp. † Herrick, Bull. Den. Univ., vol. 3, pl. 7, fig. 41.
Waverly Group: Licking County, Ohio.
1888. *Conocardium* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 44.
Waverly Group: Rushville, Ohio.
1894. *Chonocardium* sp. Keyes, Mo. Geol. Surv., vol. 5, p. 124.
Base of Burlington L. S.: Louisiana, Missouri.

CONOPTERIUM Winchell, 1865.**Conopterium effusum Winchell.**

1865. *Conopterium effusum*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 111.
Lithographic L. S.: Clarksville, Missouri.
1894. *Conopterium effusum*. Keyes, Mo. Geol. Surv., vol. 4, p. 118, pl. 14, fig. 10.
Kinderhook L. S.: Clarksville and Louisiana, Missouri.

CONULARIA Miller, 1821.**Conularia blairi Miller and Gurley.**

1894. *Conularia blairi*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist.,
p. 73, pl. 7, figs. 14, 15.
Chouteau L. S.: Sedalia, Missouri.

Conularia byblis White.

1862. *Conularia byblis*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 22.
Chemung Group: Burlington, Iowa.
1869. *Conularia byblis*. Winchell, Safford's Geol. of Tenn., p. 444.
Shales just above black shales: Hickman and Maury counties, Tennessee.
1870. *Conularia byblis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 257.
Waverly Group: Hickman County, Tennessee.
1888. *Conularia byblis*. Herrick, Bull. Den. Univ., vol. 3, p. 95.
Waverly Group: Licking County, Ohio.

Conularia chesterensis Worthen.

1883. *Conularia chesterensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 325.
Chester, L. S.: Chester, Illinois.
1890. *Conularia chesterensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 134, pl. 11,
figs. 9, 9a.
Chester, L. S.: Chester, Illinois.

Conularia crawfordsvillensis Owen.

1862. *Conularia crawfordsvillensis*. Owen, Geol. Recon. Ind., p. 364, fig. 9.
Carboniferous: Crawfordville, Indiana.

Conularia crustula White.

1880. *Conularia crustula*. White, Cont. to Pal., No. 8, p. 170, pl. 42, fig. 4a.
Coal Measures: Kansas City, Missouri; near Taos, New Mexico.
1881. *Conularia crustula*. White, U. S. Geog. Surv. W. 100th Merid., vol. 3, Supp.,
Appendix, p. xxviii, pl. 3, figs. 4a, b.
Carboniferous: Near Taos, New Mexico.
1894. *Conularia crustula*. Keyes, Mo. Geol. Surv., vol. 5, p. 219, pl. 35, fig. 2.
Upper Coal Measures: Kansas City, Missouri.
1897. *Conularia* conf. *crustula*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 41.
Coal Measures: Scott County, Arkansas.

Conularia gracilis. Name preoccupied. See *Conularia* (species undetermined).

***Conularia gratiosea* Miller and Gurley.**

1894. *Conularia gratiosea*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 74, pl. 8, fig. 1.
St. Louis Group: Spergen Hill, Indiana.

***Conularia greenei* Miller and Gurley.**

1896. *Conularia greenei*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 27, pl. 3, fig. 3.
Keokuk Group: Edwardsville, Indiana.

***Conularia intertexta* Miller.**

1892. *Conularia intertexta*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 63, pl. 10, fig. 4.
Keokuk Group: West Point, Indiana.
1894. *Conularia intertexta*. Miller, 18th Rep. Geol. Surv. Ind., p. 317, pl. 10, fig. 4.
Keokuk Group: West Point, Indiana.

***Conularia marionensis* Swallow.**

1860. *Conularia Marionensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 656.
Upper Hamilton Shales: Marion County and Hannibal, Missouri.
1894. *Conularia marionensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 217.
Hannibal Shales: Hannibal, Missouri.

***Conularia micronema* Meek.**

1871. *Conularia micronema*. Meek, Proc. Acad. Nat. Sci. Phil., p. 84.
Waverly Group: Sciotoville, Ohio.
1875. *Conularia micronema*. Meek, Pal. Ohio, vol. 2, p. 316, pl. 18, figs. 1a-d.
Waverly Group: Sciotoville, Ohio.
1888. *Conularia micronema*. Herrick, Bull. Den. Univ., vol. 3, p. 94, pl. 2, fig. 19.
Waverly Group: Licking County, Ohio.
1888. *Conularia micronema*. Herrick, Bull. Den. Univ., vol. 4, p. 49, pl. 8, fig. 4.
Waverly Group: Ohio.
1895. *Conularia micronema*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 19, fig. 4.
Kinderhook, Ohio.

***Conularia missouriensis* Swallow.**

1860. *Conularia Missouriensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 657.
Carboniferous L. S.: Cooper County, Missouri.
1873. *Conularia Missouriensis?* Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 541, pl. 22, fig. 5.
Warsaw beds: Warsaw, Illinois.
1881. *Conularia missouriensis?* White, 2d Ann. Rep. Dep. Stat. and Geol. Ind., p. 513, pl. 6, fig. 4.
St. Louis Group: Ellettsville, Indiana.
1884. *Conularia Missouriensis?* Walcott, Pal. Eureka Dist., p. 264, pl. 23, fig. 4.
Lower Carboniferous: White Pine Mining District, Nevada.
1890. *Conularia missouriensis*. Calvin, Am. Geol., vol. 5, p. 207.
St. Louis L. S.: Brown County, Illinois.
1894. *Conularia missouriensis?* Keyes, Mo. Geol. Surv., vol. 5, p. 218, pl. 35, figs. 1a, b.
Keokuk L. S.: Warsaw, Illinois.
St. Louis L. S.: St. Louis, Missouri.

***Conularia multicostata* Meek and Worthen.**

1865. *Conularia multicostata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 252.
Waverly S. S.: Richfield, Summit County, Ohio.

Conularia newberryi Winchell.

1865. *Conularia Newberryi*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 130.
Marshall Group: Cuyahoga Falls, Ohio.
1870. *Conularia Newberryi*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 258.
Waverly Group: Sciotoville, Ohio.
1875. *Conularia Newberryi*. Meek, Pal. Ohio, vol. 2, p. 316, pl. 18, figs. 2a, b.
Waverly Group: Loudonville, Ohio.
1887. *Conularia newberryi* (?) Herrick, Bull. Den. Univ., vol. 2, p. 146, pl. 14,
fig. 14.
Coal Measures: Flint Ridge, Ohio.
1888. *Conularia newberryi*. Herrick, Bull. Den. Univ., vol. 3, p. 93, pl. 6, fig. 13;
pl. 8, fig. 9; pl. 2, fig. 18 ?
Waverly Group: Licking County, Ohio.
1888. *Conularia newberryi*. Herrick, Bull. Den. Univ., vol. 4, pl. 8, fig. 5; pl. 10,
fig. 27.
Waverly Group: Cuyahoga Falls, Ohio.
1895. *Conularia newberryi*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 19, fig. 5.
Kinderhook Group: Ohio.

Conularia osagensis Swallow.

1863. *Conularia Osagensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 98.
Achimedes L. S.: Near Boonville, Missouri.
1894. *Conularia osagensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 218.
Keokuk L. S.: Boonville, Missouri.

Conularia planocostata Dawson.

1868. *Conularia planicostata*. Dawson, Acad. Geol., p. 307, fig. 117.
Carboniferous L. S.: Irish Cove, Cape Breton, Windsor, and Shubenacadie,
Nova Scotia.

Conularia roeperi Miller and Gurley.

1896. *Conularia roeperi*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist.,
p. 26, pl. 3, figs. 1, 2.
Coal Measures: Luzerne County, Pennsylvania.

Conularia sampsoni Miller.

1891. *Conularia sampsoni*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 80,
pl. 14, figs. 11, 12.
Chouteau L. S.: Sedalia, Missouri.
1892. *Conularia sampsoni*. Miller, 17th Rep. Geol. Surv. Ind., p. 690, pl. 14,
figs. 11, 12.
Chouteau L. S.: Sedalia, Missouri.

Conularia sedaliensis Miller and Gurley.

1896. *Conularia sedaliensis*. Miller and Gurley, Bull. No. 11, Ill., State Mus.
Nat. Hist., p. 28, pl. 3, figs. 4, 5.
Burlington Group: Sedalia, Missouri.

Conularia spergenensis Miller and Gurley.

1894. *Conularia spergenensis*. Miller and Gurley, Bull. No. 2, Ill. State Mus. Nat.
Hist., p. 74, pl. 8, fig. 2.
St. Louis Group: Spergen Hill, Indiana.

Conularia subcarbonaria Meek and Worthen.

1865. *Conularia subcarbonaria*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 253.
Keokuk Group: Warsaw, Illinois.
1873. *Conularia subcarbonaria*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 520,
pl. 19, fig. 4.
Keokuk Group: Hamilton, Illinois.

Conularia subcarbonaria Meek and Worthen—Continued.

1894. *Conularia subcarbonaria*. Keyes, Mo. Geol. Surv., vol. 5, p. 218
Keokuk L. S.: Wayland, Missouri.

Conularia subulata Hall.

1856. *Conularia subulata*. Hall, Trans. Albany Inst., vol. 4, p. 32.
St. Louis L. S.: Alton, Illinois.
1882. *Conularia subulata*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 91, pl. 8,
fig. 3.
St. Louis Group: Alton, Illinois.
1883. *Conularia subulata*. Hall, 12th Rep. Geol. Surv. Ind., p. 372, pl. 31, fig. 3.
St. Louis Group: Alton, Illinois.
1894. *Conularia subulata*. Keyes, Mo. Geol. Surv., vol. 5, p. 218.
St. Louis L. S.: St. Louis, Missouri.

Conularia triplicata Swallow.

1860. *Conularia triplicata*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 657.
Upper Hamilton Shales: Marion County, Missouri.
1894. *Conularia triplicata*. Keyes, Mo. Geol. Surv., vol. 5, p. 217.
Hannibal Shales: Marion County, Missouri.

Conularia verneuilana Emmons.

- *1846. *Conularia verneuilana*. Emmons, Am. Quart. Jour. Agr. and Sci., vol. 4,
p. 330.
Subcarboniferous.

Conularia victa White.

1862. *Conularia victa*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 22.
Upper Burlington L. S.: Burlington, Iowa.
1888. *Conularia victa*? Herrick, Bull. Den. Univ., vol. 4, p. 47, pl. 8, fig. 3.
Waverly Group: Newark, Rushville, and near Loudonville, Ohio.
1895. *Conularia victa*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 19, fig. 3.
Burlington Group: Newark, Ohio.

Conularia whitii Meek and Worthen.

1865. *Conularia Whitei*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 253.
Waverly S. S.: Richfield, Ohio.

Conularia (species undetermined).

1888. *Conularia newberryi*? Herrick, Bull. Den. Univ., vol. 3, p. 106, pl. 6, figs. 13,
13a, 17.
Waverly Group: Licking County, Ohio.
1888. *Conularia gracilis*. Herrick, Bull. Den. Univ., vol. 4, p. 48, pl. 8, fig. 2. (Not
C. gracilis Hall, 1847.)
Waverly Group: Moot's Run, Alexandria, and near Loudonville, Ohio.
1895. *Conularia gracilis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 19, fig. 2.
Cuyahoga Shale: Licking County, Ohio.

CORNULITES Schlotheim, 1820.**Cornulites carbonarius** Gurley.

1883. *Cornulites carbonarius*. Gurley, New Carb. Foss., Bull. No. 1, p. 8.
Kinderhook Group: Pike County, Missouri.

COSCINIUM Keyserling, 1846.**Coscinium asteria** Prout.

1860. *Coscineum asteria*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 574.
Keokuk L. S.: Warsaw, Illinois.
1866. *Coscinium asteria*. Prout, Geol. Surv. Ill., vol. 2, p. 416, pl. 22, figs. 7, 7a.
Keokuk Group: Warsaw, Illinois.

Coscinium elegans. See *Glyptopora elegans*.

Coscinium escharense Prout.

1860. *Coscinium escharense*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 574.

Keokuk L. S.: Warsaw, Illinois.

1866. *Coscinium escharense*. Prout, Geol. Surv. Ill., vol. 2, p. 416, pl. 22, figs. 8, 8a.

Keokuk Group: Warsaw, Illinois.

Coscinium keyserlingi. See *Glyptopora keyserlingi*.

Coscinium latum Ulrich.

1890. *Coscinium latum*. Ulrich, Geol. Surv. Ill., vol. 8, p. 497, pl. 76, figs. 7-7b.

Burlington, L. S.: Calhoun County, Illinois; Quincy, Illinois; Burlington, Iowa.

1894. *Coscinium* ? *latum*. Keyes, Mo. Geol. Surv., vol. 5, p. 18.

Burlington L. S.: (?) Hannibal, Missouri; Burlington, Iowa; Quincy, Illinois.

Coscinium michelini. See *Glyptopora michelinia*.

Coscinium plumosum. See *Glyptopora plumosa*.

Coscinium sagenella. See *Glyptopora sagenella*.

Coscinium tuberculatum Prout.

1860. *Coscinium tuberculatum*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 573.

Keokuk L. S.: Warsaw, Illinois.

1866. *Coscinium tuberculatum*. Prout, Geol. Surv. Ill., vol. 2, p. 415, pl. 22, fig. 6.

Keokuk Group: Warsaw, Illinois.

Coscinium wortheni. See *Glyptopora keyserlingi*.

(*COTYLEDONOCRINUS* Lyon and Casseday, 1860.)

Cotyledonocrinus pentalobus. See *Dichocrinus pentalobus*.

CRANIA Retzius, 1781.

Crania blairi. See *Crania rowleyi*.

Crania carbonaria. See *Crania modesta*.

Crania chesterensis Miller and Gurley.

1897. *Crania chesterensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 47, pl. 3, figs. 24-26.

Kaskaskia Group: Chester, Illinois.

Crania hamiltonia. See *Craniella hamiltonia*.

Crania laevis Keyes.

1894. *Crania laevis*. Keyes, Mo. Geol. Surv., vol. 5, p. 40.

Chouteau L. S.: Louisiana, Missouri.

Burlington L. S.: Louisiana, Missouri.

Crania modesta White and St. John.

1868. *Crania modesta*. White and St. John, Trans. Chicago Acad. Sci., vol. 1, p. 118.

Upper Coal Measures: Fremont County, Iowa.

1882. *Crania carbonaria*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 229.

Coal Measures: Carbon Hill, Hocking County, Ohio.

1884. *Crania modesta*. White, 13th Rep. Geol. Surv. Ind., p. 121, pl. 35, fig. 9; pl. 36, fig. 5.

Coal Measures: Eugene and Newport, Vermilion County, and Merom, Sullivan County, Indiana.

***Crania modesta* White and St. John—Continued.**

1891. *Crania carbonaria*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 599, pl. 15, figs. 11, 12.
 Coal Measures: Carbon Hill, Hocking County, Ohio.
1895. *Crania carbonaria*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 484, pl. 11, figs. 11, 12.
 Coal Measures: Carbon Hill, Hocking County, Ohio.

***Crania permiana* Shumard.**

1859. *Crania Permiana*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 395.
 White Permian L. S.: Guadalupe Mountains.

***Crania reposita* White.**

1862. *Crania reposita*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 30.
 Burlington L. S.

***Crania rowleyi* Gurley.**

1883. *Crania Rowleyi*. Gurley, New Carb. Foss., Bull. No. 1, p. 3.
 Kinderhook Group: Pike County, Missouri.
1892. *Crania Rowleyi*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 4H, fig. 13.
 Chouteau L. S.: Pike County, Missouri.
1892. *Crania blairi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 56, pl. 9, figs. 5, 6.
 Chouteau L. S.: Sedalia, Missouri.
1894. *Crania blairi*. Miller, 18th Rep. Geol. Surv. Ind., p. 310, pl. 9, figs. 5, 6.
 Chouteau L. S.: Sedalia, Missouri.

***Crania* (species undetermined).**

1868. *Crania*. Dawson, Acad. Geol., p. 301.
 Carboniferous L. S.: Windsor, Nova Scotia.

CRANIELLA Ehlert, 1888.***Craniella hamiltoniae* Hall.**

1888. *Crania hamiltoniae*. Herrick, Bull. Den. Univ., vol. 3, p. 31, pl. 12, fig. 10.
 Waverly Group: Licking County, Ohio.

CRENIPECTEN Hall, 1883.***Crenipecten cancellatus* Herrick.**

1888. *Ariculopecten (Lyriopecten?) cancellatus*. Herrick, Bull. Den. Univ., vol. 3, p. 54, pl. 12, fig. 7.
 Waverly Group: Licking County, Ohio.
1888. *Crenipecten cancellatus*. Herrick, Bull. Den. Univ., vol. 4, p. 34, pl. 5, fig. 3;
 pl. 11, fig. 25.
 Waverly Group: Moot's Run, Licking County, Ohio.
1889. *Crenipecten cancellatus*. Herrick, Am. Geol., vol. 3, pl. 3, fig. 3.
1895. *Crenipecten cancellatus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, fig. 14.
 Cuyahoga Shale: Moot's Run and northern Ohio.

Crenipecten caroli*. See *Aviculopecten caroli*.**Crenipecten cooperi*. See *Aviculopecten cooperi*.*****Crenipecten crenistriatus*. See *Aviculopecten crenistriatus*.*****Crenipecten foerstii* Herrick.**

1887. *Crenipecten Foerstii*. Herrick, Bull. Den. Univ., vol. 2, p. 28, pl. 3, figs. 9, 9a.
 Coal Measures: Flint Ridge, Ohio.
1888. *Crenipecten (foerstii?)*. Herrick, Bull. Den. Univ., vol. 3, pl. 12, fig. 19.
 Waverly Group: Licking County, Ohio.

Crenipecten granvillensis. See *Aviculopecten granvillensis*.

***Crenipecten hallanus* Walcott.**

1884. *Crenipecten Hallanus*. Walcott, Pal. Eureka Dist., p. 231, pl. 8, figs. 7-7c.
Lower Carboniferous: Eureka District, Nevada.

***Crenipecten senilis* Herrick.**

1888. *Crenipecten senilis*. Herrick, Bull. Den. Univ., vol. 3, p. 54, pl. 3, fig. 1.
Waverly Group: Licking County, Ohio.

***Crenipecten subcardiformis* Herrick.**

1888. *Crenipecten sub-cardiformis*. Herrick, Bull. Den. Univ., vol. 3, p. 53, pl. 7, figs. 4, 5.
Waverly Group: Licking County, Ohio.

***Crenipecten winchelli* Meek.**

1875. *Aviculopecten Winchelli*. Meek, Pal. Ohio, vol. 2, p. 296, pl. 15, figs. 5a, b.
Waverly Group: Newark, Ohio.
1884. *Crenipecten Winchelli*. Hall, Rep. N. Y. State Geol. for 1881, pl. 1, figs. 4-5.
Waverly Group: Newark Ohio.
1884. *Crenipecten Winchelli*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 89, pl. 9, figs. 1, 2, 4, 25-30.
Waverly S. S.: Newark, Ohio.
1886. *Aviculopecten Winchelli*. Heilprin, 2d Geol. Surv. Penn., Ann. Rep. 1885, p. 453, fig. 6b; p. 442, fig. 6; p. 444, fig. 6a.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Aviculopecten Winchelli*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 269, fig. 6a; p. 270, fig. 6.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1888. *Aviculopecten winchelli*. Herrick, Bull. Den. Univ., vol. 3, pl. 1, fig. 18; pl. 6, fig. 12; pl. 10, fig. 7.
Waverly Group: Licking County, Ohio.

***Crenipecten* (species undetermined).**

1888. *Crenipecten* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 7, fig. 13.
Waverly Group: Licking County, Ohio.
1888. *Crenipecten*. Herrick, Bull. Den. Univ., vol. 3, pl. 12, fig. 21.
Waverly Group: Licking County, Ohio.
1888. *Crenipecten* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, figs. 8, 9.
Waverly Group: Cuyahoga Falls, Ohio.

CROMYOCRINUS Trautschold, 1867.

Cromyocrinus buttsi. See *Ulocrinus buttsi*.

***Cromyocrinus globosus* Worthen.**

1873. *Agassizocrinus globosus*. Worthen, Geol. Surv. Ill., vol. 5, p. 557, pl. 21, fig. 12.
Chester Group: Chester, Illinois.
1894. *Cromyocrinus globosus*. Keyes, Mo. Geol. Surv., vol. 4, p. 216.
Kaskaskia L. S.: Chester, Illinois.

Cromyocrinus gracilis. See *Eupachyrcrinus gracilis*.

***Cromyocrinus hemisphericus* Worthen.**

1882. *Agassizocrinus hemisphericus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 37.
Chester L. S.: Randolph County, Illinois.
1883. *Agassizocrinus hemisphericus*. Worthen, Geol. Surv. Ill., vol. 7, p. 316, pl. 29, fig. 7.
Chester L. S.: Randolph County, Illinois.

Cromyocrinus kansasensis. See *Ulocrinus kansasensis*.

***Cromyocrinus papillatus* Worthen.**

1882. *Agassizocrinus papillatus*. Worthen, Bull. No. 1, Ill. State Mus Nat. Hist., p. 36.

Chester L. S.: Monroe County, Illinois.

1883. *Agassizocrinus papillatus*. Worthen, Geol. Surv. Ill., vol. 7, p. 315, pl. 29, fig. 17.

Chester L. S.: Monroe County, Illinois.

***Cromyocrinus sangamonensis* Meek and Worthen.**

1860. *Cyathocrinus ? Sangamonensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 393.

Upper Coal Measures: Sugar Creek, Sangamon County, Illinois.

1866. *Cyathocrinus ? sangamonensis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 310, pl. 26, figs. 1a, b.

Coal Measures: Sugar Creek, Sangamon County, Illinois.

CRYPTACANTHIA White and St. John, 1867.

***Cryptacanthia compacta* White and St. John.**

1868. *Waldheimia ? compacta*. White and St. John, Trans. Chicago Acad. Sci., vol. 1, p. 119, figs. 3a-c.

Upper Coal Measures: Madison County, Iowa.

1894. *Cryptacanthia compacta*. Hall and Clarke, Int. to Study of Brach., pt. 2, p. 867 (119), fig. 508.

1894. *Waldheimia ? (Cryptacanthia) compacta*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, p. 301, fig. 225.

CRYPTOBLASTUS Etheridge and Carpenter, 1886.

***Cryptoblastus kirkwoodensis* Shumard.**

1863. *Elaeocrinus Kirkwoodensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 2, p. 113.

St. Louis L. S.: Near Kirkwood, Missouri.

1886. *Cryptoblastus ? Kirkwoodensis*. Etheridge and Carpenter, Cat. Blast., p. 144.

1894. *Cryptoblastus kirkwoodensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 139, pl. 17, figs. 8a, b.

St. Louis L. S.: Kirkwood, Missouri.

***Cryptoblastus melo* Owen and Shumard.**

1850. *Pentremites melo*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 65, pl. 7, figs. 14a-c.

Subcarboniferous L. S.: Burlington, Iowa.

1852. *Pentremites melo*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 592, tab. 5A, figs. 14a-c.

Subcarboniferous L. S.: Burlington, Iowa.

1886. *Cryptoblastus melo*. Etheridge and Carpenter, Cat. Blast., p. 232, pl. 7, figs. 14, 15.

Lower Burlington L. S.: Burlington, Iowa; Hannibal, and St. Louis County, Missouri; near Monmouth, Illinois.

1894. *Cryptoblastus melo*. Keyes, Mo. Geol. Surv., vol. 4, p. 139, pl. 18, figs. 7a, b.

Lower Burlington L. S.: Sedalia, Louisiana, and Hannibal, Missouri.

***Cryptoblastus pisum* Meek and Worthen.**

1869. *Granatocrinus pisum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 89.

Upper Burlington L. S.: Burlington, Iowa.

Cryptoblastus pisum Meek and Worthen—Continued.

1873. *Granatocrinus pisum*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 470, pl. 9, fig. 4.

Burlington L. S.: Burlington, Iowa.

1886. *Cryptoblastus pisum*. Etheridge and Carpenter, Cat. Blast., p. 142.

Cryptoblastus projectus Meek and Worthen.

1861. *Pentremites melo* var. *projectus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 142.

Burlington L. S.: Burlington, Iowa.

1868. *Granatocrinus projectus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 496, pl. 18, fig. 7.

Burlington Group: Burlington, Iowa.

CRYPTONELLA Hall, 1861.**Cryptonella eudora** Hall.

1888. *Cryptonella eudora*. Herrick, Bull. Den. Univ., vol. 3, p. 48, pl. 5, fig. 10. Waverly Group: Licking County, Ohio.

1895. *Cryptonella eudora*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 21, fig. 10. Kinderhook: Granville, Ohio.

Cryptonella (?) inconstans Herrick.

1888. *Terebratula (?) inconstans*. Herrick, Bull. Den. Univ., vol. 4, p. 24, pl. 3, figs. 8, 9; pl. 11, fig. 18.

Waverly Group: Moot's Run, Licking County, and Lodi, Medina County, Ohio.

1895. *Terebratula inconstans*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 17. Cayahoga Shale: Richland County, Lodi, Moot's Run, etc., Ohio.

1895. *Cryptonella (?) inconstans*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 79, figs. 31, 32.

Waverly Group: Medina County, Ohio.

Cryptonella subelliptica Hall and Clarke.

1895. *Cryptonella subelliptica*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 81, figs. 41-43.

Waverly Group: Sciotoville, Ohio.

1897. *Cryptonella subelliptica*. Hall, 14th Rep. N. Y. State Geol., p. 371, pl. 14, figs. 4-6.

Waverly Group: Sciotoville, Ohio.

CRYPTOZOE Packard, 1886.**Cryptozoe problematicus** Packard.

1886. *Cryptozoe problematicus*. Packard, Proc. Am. Phil. Soc., vol. 23, p. 381, figs. 1-3.

Carboniferous: Mazon Creek, Illinois.

(CTENODONTA Salter, 1851.)

Ctenodonta houghtoni. See *Nucula houghtoni*.

Ctenodonta hubbardi. See *Palæoneilo sulcatina*.

Ctenodonta iowensis. See *Nucula houghtoni*.

Ctenodonta stella. See *Nucula stella*.

CUCUMULITES Gurley, 1884.

Cucumulites tricarinatus Gurley.

1884. *Cucumulites tricarinatus*. Gurley, New Carb. Foss., Bull. No. 2, p. 3.
Warsaw beds: Ellettsville, Indiana.

Cucumulites tuberculatus Gurley.

1884. *Cucumulites tuberculatus*. Gurley, New Carb. Foss., Bull. No. 2, p. 3.
Warsaw beds: Ellettsville, Indiana.

CYATHAXONIA Michelin, 1846.

Cyathaxonia cynodon Rafinesque and Clifford.

1820. *Turbinolia cynodon*. Rafinesque and Clifford, Ann. génér. de Phys. de Bruxelles, tome 5, p. 234.
1851. *Cyathaxonia cynodon*. Milne-Edwards and Haime, Monog. des Polyp. Foss., p. 321, pl. 1, figs. 4, 4a.
Carboniferous: Hills south of Louisville; Jefferson County; Pittsburg, Pennsylvania.
1860. *Cyathaxonia cynodon*. Milne-Edwards, Hist. Nat. Corr., vol. 3, p. 330.
Carboniferous: North America at Pittsburg, and near Louisville.

Cyathaxonia distorta Worthen.

1875. *Cyathaxonia distorta*. Worthen, Geol. Surv. Ill., vol. 6, p. 526, pl. 32, fig. 4.
Coal Measures: Cumberland County, Illinois.

Cyathaxonia profunda Milne-Edwards and Haime. See *Lophophyllum profundum*.*Cyathaxonia prolifera* McChesney. See *Lophophyllum profundum*.

CYATHOCRINUS Miller, 1821.

Cyathocrinus andersoni Miller and Gurley.

1894. *Cyathocrinus andersoni*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 30, pl. 3, figs. 2, 3.
Keokuk Group: Keokuk, Iowa.

Cyathocrinus angulatus. See *Barycrinus angulatus*.*Cyathocrinus arboreus* Meek and Worthen.

1865. *Cyathocrinus arboreus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 160.
Keokuk Group: Crawfordsville, Indiana.
1868. *Cyathocrinus arboreus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 520.
Keokuk Group: Crawfordsville, Indiana.

Cyathocrinus barrisi Hall.

1861. *Poteriocrinus barrisi*. Hall, Desc. New Spec. Crin., p. 6.
Burlington L. S.
1861. *Poteriocrinus Barrisi*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 303.
Burlington L. S.: Burlington, Iowa.

Cyathocrinus barydactylus Wachsmuth and Springer.

1878. *Cyathocrinus barydactylus*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 257.
Upper Burlington L. S.: Near Burlington, Iowa.

Cyathocrinus blairi Miller and Gurley.

1895. *Cyathocrinus blairi*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 67, pl. 4, figs. 11-15.
Chouteau L. S.: Sedalia, Missouri.

Cyathocrinus blairi Miller and Gurley—Continued.

1896. *Cyathocrinus blairi*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 50, pl. 3, figs. 21, 22.

Chouteau L. S.: Sedalia, Missouri.

1896. *Cyathocrinus blairi*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 39.

Cyathocrinus boonvillensis Miller.

1891. *Cyathocrinus Boonvillensis*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 29, pl. 4, figs. 3, 4.

Keokuk Group: Boonville, Missouri.

1894. *Cyathocrinus boonvillensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 208.

Keokuk L. S.: Boonville, Missouri.

Cyathocrinus brittsi Miller and Gurley.

1895. *Cyathocrinus brittsi*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 70, pl. 4, figs. 35, 36.

Burlington Group: Sedalia, Missouri.

Cyathocrinus bullatus. See *Barycrinus bullatus*.**Cyathocrinus chouteauensis** Miller and Gurley.

1895. *Cyathocrinus chouteauensis*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 68, pl. 4, fig. 16.

Chouteau L. S.: Sedalia, Missouri.

1896. *Cyathocrinus chouteauensis*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 38, pl. 2, fig. 24.

Chouteau L. S.: Sedalia, Missouri.

Cyathocrinus cornutus. See *Barycrinus cornutus*.**Cyathocrinus crassibrachiatus**. See *Barycrinus crassibrachiatus*.**Cyathocrinus crassus**. See *Eupachycrinus crassus*.**Cyathocrinus crawfordsvillensis** Miller.

1882. *Cyathocrinus crawfordsvillensis*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 5, p. 79, pl. 3, fig. 1.

Keokuk Group: Crawfordsville, Indiana.

Cyathocrinus dekadactylus. See *Scytalocrinus grandis*.**Cyathocrinus divaricatus**. See *Cyathocrinus iowensis*.**Cyathocrinus enormis** Meek and Worthen.

1861. *Poteriocrinus? enormis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 137.

Burlington L. S.: Burlington, Iowa.

1865. *Cyathocrinus enormis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 152.

1868. *Cyathocrinus enormis*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 481, pl. 16, figs 3a, b.

Burlington Group: Burlington, Iowa.

1894. *Cyathocrinus enormis*. Keyes, Mo. Geol. Surv., vol. 4, p. 208, pl. 25, fig. 12.

Lower Burlington, L. S.: Hannibal, Missouri.

Cyathocrinus faberi Miller and Gurley.

1896. *Cyathocrinus faberi*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 85, pl. 5, figs. 12-15.

Burlington Group: Burlington, Iowa.

Cyathocrinus farleyi Meek and Worthen.

1866. *Cyathocrinus Farleyi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 252.

Keokuk Group: Warsaw, Illinois.

1868. *Cyathocrinus Farleyi*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 517, pl. 20, figs. 1a-c.

Keokuk Group: Warsaw, Illinois.

Cyathocrinus florealis. See *Zeacrinus florealis*.

***Cyathocrinus fragilis* Meek and Worthen.**

1868. *Cyathocrinites fragilis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 237.

Lower Burlington L. S.: Burlington, Iowa.

1873. *Cyathocrinites fragilis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 401, pl. 2, fig. 14.

Burlington, L. S.: Burlington, Iowa.

***Cyathocrinus gilesii* Wachsmuth and Springer.**

1878. *Cyathocrinus Gilesii*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 259.

Upper Burlington, L. S.: Near Burlington, Iowa.

***Cyathocrinus gorbyi* Miller.**

1892. *Cyathocrinus gorbyi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 44, pl. 5, figs. 6-8.

Keokuk Group: Gosport, Indiana.

1894. *Cyathocrinus gorbyi*. Miller, 18th Rep. Geol. Surv. Ind., p. 298, pl. 5, figs. 6-8.

Keokuk Group: Gosport, Indiana.

***Cyathocrinus granuliferus* Shumard.**

1854. *Cyathocrinus granuliferus*. Shumard, Marcy's Expl. Red River of Louis., p. 173.

Carboniferous: Washington County, Arkansas.

***Cyathocrinus gurleyi* Miller.**

1891. *Cyathocrinus gurleyi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 47, pl. 9, fig. 4.

Keokuk Group: Washington County, Indiana.

1892. *Cyathocrinus gurleyi*. Miller, 17th Rep. Geol. Surv. Ind., p. 657, pl. 9, fig. 4.

Keokuk Group: Washington County, Indiana.

Cyathocrinus hamiltonensis. See *Cyathocrinus parvibrachiatus*.

***Cyathocrinus harrisi* Miller.**

1880. *Cyathocrinus harrisi*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 255, pl. 15, fig. 2.

Keokuk Group: Crawfordsville, Indiana.

***Cyathocrinus harrodi* Wachsmuth and Springer.**

1879. *Cyathocrinus Harrodi*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 310 (Rev. Palæoor., I, p. 87.)

Keokuk L. S.: Canton, Indiana.

Cyathocrinus hexadactylus. See *Vasocrinus hexadactylus*.

Cyathocrinus hoveyi. See *Barycrinus hoveyi*.

***Cyathocrinus incipiens* Hall.**

1861. *Cyathocrinus incipiens*. Hall, Desc. New Spec. Crin., p. 5.

Burlington L. S.

1861. *Cyathocrinus incipiens*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 296.

Burlington L. S.: Burlington, Iowa.

Cyathocrinus inequidactylus. See *Cyathocrinus maxvillensis*.

Cyathocrinus inflexus. See *Ceriacrinus inflexus*.

***Cyathocrinus insperatus* Lyon.**

1866. *Cyathocrinus insperatus*. Lyon, Trans. Am. Phil. Soc., vol. 8, p. 457, pl. 27, fig. K.

Subcarboniferous silicious sandstone: Crawfordsville, Montgomery County, Indiana.

Cyathocrinus intermedius. See *Parisocrinus intermedius*.

***Cyathocrinus iowensis* Owen and Shumard.**

1850. *Cyathocrinus Iowensis*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 63, pl. 7, fig. 11.
Carboniferous L. S.: Burlington, Iowa.
1852. *Cyathocrinus iowensis*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 591, tab. 5A, figs. 11a-c.
Carboniferous L. S.: Burlington, Iowa.
1858. *Cyathocrinus malvaceus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 554, pl. 9, figs. 4a, b.
Burlington L. S.: Burlington, Iowa.
1858. *Cyathocrinus diraricatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 554, pl. 9, fig. 5.
Burlington L. S.: Burlington, Iowa.
1861. *Cyathocrinus viminalis*. Hall, Desc. New Spec. Crin., p. 5.
Burlington L. S.
1861. *Cyathocrinus riminalis*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 299.
Burlington L. S.: Burlington, Iowa.
1893. *Cyathocrinus riminalis*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 28, pl. 3, fig. 7.
Burlington L. S.: Burlington, Iowa.
1894. *Cyathocrinus iowensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 207, pl. 25, fig. 11.
Burlington L. S.: Louisiana and Sedalia, Missouri.

Cyathocrinus kelloggi. See *Barycrinus kelloggi*.

***Cyathocrinus labyrinthicus* Miller.**

1891. *Cyathocrinus labyrinthicus*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 49, pl. 12, figs. 11-14.
Keokuk Group: Boonville, Missouri.
1891. *Cyathocrinus labyrinthicus*. Miller, 17th Rep. Geol. Surv. Ind., p. 659, pl. 12, figs. 11-14.
Keokuk Group: Boonville, Missouri.

Cyathocrinus læviculus. See *Poteriocrinus læviculus*.

***Cyathocrinus lamellosus* White.**

1862. *Cyathocrinus lamellosus*. White, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 504.
Burlington L. S.: Burlington, Iowa.

Cyathocrinus latus. See *Barycrinus sculptilis*.

Cyathocrinus lyoni. See *Vasocrinus hexadactylus*.

***Cyathocrinus macadamsi* Miller and Gurley.**

1895. *Cyathocrinus macadamsi*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 69, pl. 4, figs. 31, 32.
St. Louis Group: Alton, Illinois.

Cyathocrinus macropleurus. See *Vasocrinus macropleurus*.

Cyathocrinus magister. See *Barycrinus magister*.

Cyathocrinus magnoliæformis. See *Zeacrinus magnoliæformis*.

Cyathocrinus malvaceus. See *Cyathocrinus iowensis*.

Cyathocrinus maniformis. See *Eupachycrinus maniformis*.

***Cyathocrinus marshallensis* Worthen.**

1882. *Cyathocrinus? marshallensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 33.
Kinderhook Group: Marshalltown, Iowa.
1883. *Cyathocrinus Marshallensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 310, pl. 30, fig. 4.
Kinderhook Group: Marshalltown, Iowa.

Cyathocrinus maxvillensis Whitfield.

1882. *Cyathocrinus inequidactylus*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 219.
(Not. *C. inequidactylus* McCoy, 1844.)

Maxville L. S.: Newtonville, Ohio.

1891. *Cyathocrinus Maxvillensis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 577,
pl. 13, figs. 5-8.

Maxville L. S.: Newtonville, Ohio.

1895. *Cyathocrinus Maxvillensis*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 465, pl. 9,
figs. 5-8.

Maxville L. S.: Newtonville, Ohio.

Cyathocrinus meekianus. See *Barycrinus meekianus*.**Cyathocrinus multibrachiatus** Lyon and Casseday.

1859. *Cyathocrinus multibrachiatus*. Lyon and Casseday, Am. Jour. Sci. (2),
vol. 28, p. 245.

Subcarboniferous: Montgomery County, Indiana.

1872. *Cyathocrinus multibrachiatus*. Hall, Photo. Plates of Crin., pl. 5, figs. 3-6.

1882. *Cyathocrinus multibrachiatus*. White, 11th Rep. Geol. Surv. Ind., p. 367, pl.
39, fig. 1.

Keokuk Group: Crawfordsville, Indiana.

Cyathocrinus opimus Miller and Gurley.

1890. *Cyathocrinus opimus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 348,
pl. 5, fig. 5.

Keokuk Group: Crawfordsville, Indiana.

Cyathocrinus parvibrachiatus Hall.

1861. *Cyathocrinus parvibrachiatus*. Hall, Desc. New. Spec. Crin., p. 6.

Keokuk L. S.

1861. *Cyathocrinus parvibrachiatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 294.

Keokuk L. S.: Keokuk, Iowa.

1872. *Cyathocrinus parvibrachiatus*. Hall, Photo. Plates of Crin., pl. 5, figs. 1, 2.

1882. *Cyathocrinus hamiltonensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist.,
p. 32.

Upper Keokuk L. S.: Hamilton, Illinois.

1883. *Cyathocrinus parvibrachiatus*. Worthen, Geol. Surv. Ill., vol. 7, p. 309, pl. 28,
fig. 5.

Keokuk L. S.: Hamilton, Illinois.

Cyathocrinus pentalobus. See *Eupachycrinus quatuor-decembrachialis*.**Cyathocrinus poterium** Meek and Worthen.

1870. *Cyathocrinites? poterium*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 24.

Keokuk Group: Crawfordsville, Indiana.

1873. *Cyathocrinites poterium*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 489,
pl. 12, fig. 4.

Keokuk Group: Crawfordsville, Indiana.

Cyathocrinus protuberans. See *Barycrinus bullatus*.**Cyathocrinus quinquelobus**. See *Barycrinus stellatus*.**Cyathocrinus rigidus** White.

1862. *Cyathocrinus rigidus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 8.

Lower Burlington L. S.: Burlington, Iowa.

Cyathocrinus rotundatus Hall.

1858. *Cyathocrinus rotundatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 555, pl. 9, figs. 7a, b.
Burlington L. S.: Quincy, Illinois.

1860. *Cyathocrinus rotundus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 3, fig. 8.

Cyathocrinus saffordi Meek and Worthen.

1860. *Cyathocrinus Saffordi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 391.
Keokuk L. S.: White's Creek, Tennessee.

1866. *Cyathocrinus saffordi*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 236,
pl. 17, figs. 5a, b.

Keokuk L. S.: White's Creek Springs, Tennessee.

Cyathocrinus sampsoni Miller.

1891. *Cyathocrinus Sampsoni*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 30, pl. 4,
figs. 9, 10.

Burlington Group: Sedalia, Missouri.

Cyathocrinus sangamonensis. See *Cromyocrinus sangamonensis*.

Cyathocrinus scitulus. See *Barycrinus sculptilis*.

Cyathocrinus sculptilis. See *Barycrinus sculptilis*.

Cyathocrinus signatus Miller and Gurley.

1894. *Cyathocrinus signatus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat.
Hist., p. 32, pl. 6, fig. 10.

Keokuk Group: Washington County, Indiana.

Cyathocrinus solidus. See *Barycrinus solidus*.

Cyathocrinus somersi Whitfield.

1882. *Cyathocrinus Somersi*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 226.

Coal Measures: Carbon Hill, Hocking County, Ohio.

1891. *Cyathocrinus Somersi*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 596, pl. 15,
figs. 4, 5.

Coal Measures: Carbon Hill, Hocking County, Ohio.

1896. *Cyathocrinus Somersi*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 482, pl. 11,
figs. 4, 5.

Coal Measures: Carbon Hill, Hocking County, Ohio.

Cyathocrinus spurius. See *Barycrinus spurius*.

Cyathocrinus stellatus. See *Barycrinus stellatus*.

Cyathocrinus stillativus White.

1880. *Cyathocrinus stillativus*. White, Proc. U. S. Nat. Mus., vol. 2, p. 258, pl. 1,
figs. 9, 10.

Upper Coal Measures: 30 miles west of Humboldt, Kansas.

1880. *Cyathocrinus stillativus*. White, Cont. to Inv. Pal., No. 6, p. 125, pl. 35,
figs. 3a, b.

Upper Coal Measures: 30 miles west of Humboldt, Kansas.

1894. *Phialocrinus stillativus*. Keyes, Mo. Geol. Surv., vol. 4, p. 219, pl. 28,
figs. 6a, b.

Upper Coal Measures: Kansas City, Missouri.

Cyathocrinus subtumidus Meek and Worthen.

1865. *Cyathocrinus subtumidus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 151.

Keokuk L. S.: Near White Hall, Green County, Illinois.

1873. *Barycrinus subtumidus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 487,
pl. 13, fig. 3.

Keokuk L. S.: Near Whitehall, Green County, Illinois.

Cyathocrinus tenuidactylus Meek and Worthen.

1868. *Cyathocrinites tenuidactylus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 237.

Lower Burlington Group: Burlington, Iowa.

Cyathocrinus tenuidactylus Meek and Worthen—Continued.

1873. *Cyathocrinites tenuidactylus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 403, pl. 2, fig. 15.

Burlington L. S.: Burlington, Iowa.

Cyathocrinus thomæ. See *Barycrinus thomæ*.

Cyathocrinus tumidulus Miller and Gurley.

1894. *Cyathocrinus tumidulus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 31, pl. 3, fig. 7.

Keokuk Group: Indian Creek, near Crawfordsville, Indiana.

Cyathocrinus tumidus. See *Barycrinus tumidus*.

Cyathocrinus viminalis. See *Cyathocrinus iowensis*.

Cyathocrinus wachsmuthi. See *Barycrinus wachsmuthi*.

Cyathocrinus (species undetermined).

1859. *Cyathocrinus* — ? Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 24.
Upper Coal Measures: Cottonwood Creek, Kansas.

CYATHOPHYLLUM Goldfuss, 1826.**Cyathophyllum billingsi** Dawson.

1868. *Cyathophyllum Billingsi*. Dawson, Acad. Geol., p. 287, fig. 84b.
Carboniferous L. S.: Stewiacke, Nova Scotia.

Cyathophyllum flexuosum. See *Campophyllum torquium*.

Cyathophyllum fungites. See *Zaphrentis dalei*.

Cyathophyllum glabrum Keyes.

1894. *Cyathophyllum glabrum*. Keyes, Mo. Geol. Surv., vol. 4, p. 105, pl. 12, figs. 6a, b.

Chouteau L. S.: Curryville, Missouri.

Cyathophyllum nevadense Meek.

1877. *Cyathophyllum* (*Campophyllum* ?) *Nevadense*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 60, pl. 5, figs. 3-3b.

Carboniferous: Boxelder Peak, Wasatch Range, Utah.

Cyathophyllum subcaespitosum Meek.

1877. *Cyathophyllum subcaespitosum*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 60, pl. 5, figs. 4-4b.

Carboniferous: Near Swansea, White Pine District, Nevada.

1873. *Cyathophyllum subcaespitosum*. Meek, U. S. Geol. Surv. Mont., Idaho, Wyo., and Utah, p. 470.

Carboniferous: Divide between Ross Fork and Lincoln Valley, Montana.

Cyathophyllum torquium. See *Campophyllum torquium*.

Cyathophyllum vermiculare. See *Campophyllum torquium*.

CYCLONEMA Hall, 1852.**Cyclonema levenworthanum** Hall.

1856. *Pleurotomaria Levenworthana*. Hall, Trans. Albany Inst., vol. 4, p. 24.

St. Louis, L. S.: Spergen Hill and Bloomington, Indiana; Alton, Illinois.

1882. *Cyclonema Levenworthana*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 75, pl. 8, figs. 29-31.

St. Louis Group: Spergen Hill and Bloomington, Indiana; Alton, Illinois.

1883. *Cyclonema Levenworthana*. Hall, 12th Rep. Geol. Surv. Ind., p. 363, pl. 31, figs. 29-31.

St. Louis Group: Alton, Illinois; Spergen Hill, Lanesville, and Bloomington, Indiana.

Cyclonema levenworthanum Hall—Continued.

1888. *Cyclonema levenworthana*? Herrick, Bull. Den. Univ., vol. 3, p. 86, pl. 1, fig. 20.

Waverly Group: Licking County, Ohio.

Cyclonema pulchellum Miller and Gurley.

1896. *Cyclonema pulchellum*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 19, pl. 3, fig. 6.

Knobstone Group: Near New Albany, Indiana.

Cyclonema strigillata. See *Pleurotomaria strigillata*.

Cyclonema subangulatum Hall.

1856. *Pleurotomaria subangulata*. Hall, Trans. Albany Inst., vol. 4, p. 25.
St. Louis L. S.: Spergen Hill, Indiana.

1882. *Cyclonema subangulatum*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 76, pl. 8, fig. 32.

St. Louis Group: Spergen Hill, Indiana.

1883. *Cyclonema subangulatum*. Hall, 12th Rep. Geol. Surv. Ind., p. 364, pl. 31, fig. 32.

St. Louis Group: Spergen Hill and Lanesville, Indiana.

Cyclonema (species undetermined).

1888. *Cyclonema*? Herrick, Bull. Den. Univ., vol. 3, pl. 8, fig. 17.

Waverly Group: Licking County, Ohio.

CYCLOPORA Prout, 1860.

Cyclopora discoidea. See *Proutella discoidea*.

Cyclopora expatata Ulrich.

1890. *Cyclopora expatata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 673, pl. 68, figs. 4-4d.

Keokuk Group: Warsaw and Nauvoo, Illinois.

1894. *Cyclopora expatata*. Keyes, Mo. Geol. Surv., vol. 5, p. 37.

Keokuk Group: Warsaw, Illinois.

Cyclopora fungia Prout.

1860. *Cyclopora fungia*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 577.

Keokuk L. S.: St. Francisville, Missouri.

1866. *Cyclopora fungia*. Prout, Geol. Surv. Ill., vol. 2, p. 419, pl. 22, figs. 9-9b.

Keokuk Group: St. Francisville, Missouri.

1890. *Cyclopora fungia*. Ulrich, Geol. Surv. Ill., vol. 8, p. 671, pl. 68, figs. 3-3g.

Keokuk and Warsaw beds: Illinois and Iowa.

1894. *Cyclopora fungia*. Keyes, Mo. Geol. Surv., vol. 5, p. 36.

Keokuk L. S.: St. Francisville, Missouri.

Cyclopora polymorpha. See *Stenopora tuberculata*.

CYCLOPORELLA Ulrich, 1890.**Cycloporella ? perversa Ulrich.**

1890. *Cycloporella ? perversa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 676, pl. 69, figs. 3-3b.

Keokuk Group: Warsaw, Illinois; Green County, Illinois; Bentonsport, Iowa.

1894. *Cycloporella perversa*. Keyes, Mo. Geol. Surv., vol. 5, p. 37.

Keokuk L. S.: Bentonsport, Iowa.

Cycloporella spinifera Ulrich.

1890. *Cycloporella spinifera*. Ulrich, Geol. Surv. Ill., vol. 8, p. 675, pl. 69, figs. 1-1c.

Keokuk Group: Warsaw, Illinois.

1894. *Cycloporella spinifera*. Keyes, Mo. Geol. Surv., vol. 5, p. 37.

Keokuk L. S.: Warsaw, Illinois.

CYCLUS De Koninck, 1841.

Cyclus americanus Packard.1885. *Cyclus americanus*. Packard, Am. Nat., vol. 19, p. 292.

Carboniferous: Mazon Creek, Illinois.

1886. *Cyclus americana*. Packard, Mem. Nat. Acad. Sci., vol. 3, pt. 2, p. 143, pl. 5, figs. 1, 1a; pl. 6, figs. 4, 4a.

Carboniferous: Mazon Creek, Illinois.

(CYPRICARDELLA Hall, 1858.)

Cypricardella eximia. See *Microdon*? *eximia*.*Cypricardella gorbyi*. See *Microdon*? *gorbyi*.*Cypricardella nucleata*. See *Microdon nucleata*.*Cypricardella oblonga*. See *Microdon oblonga*.*Cypricardella plicata*. See *Goniophora plicata*.*Cypricardella quadrata*. See *Microdon quadrata*.*Cypricardella subelliptica*. See *Microdon subelliptica*.

CYPRICARDIA Lamark, 1801.

Cypricardia chouteauensis Swallow.1863. *Cypricardia* (?) *Chouteauensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 96.

Chouteau L. S.: Cooper County, Missouri.

Cypricardia indianensis. See *Cypricardinia indianensis*.*Cypricardia insecta* Dawson.1868. *Cypricardia insecta*. Dawson, Acad. Geol., p. 303, fig. 106.

Carboniferous L. S.: Windsor, Nova Scotia.

Cypricardia occidentalis Hall.1852. *Cypricardia occidentalis*. Hall, Stansb. Exped. Gt. Salt Lake, p. 412, pl. 2, fig. 2.

Carboniferous: Big Blue River.

Cypricardia occidentalis Swallow. See *Cypricardia swallowana*.*Cypricardia pikensis* Swallow.1863. *Cypricardia* (?) *Pikensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 95.

Coal Measures: Pike County, Missouri.

Cypricardia plicatula Swallow.1858. *Cypricardia plicatula*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 205.

Lower Coal Measures: Howard County, Missouri.

Middle Coal Measures: Platte County, Missouri.

Coal Measures: Kansas.

Cypricardia randolphensis. See *Sanguinolites randolphensis*.*Cypricardia rigida*. See *Sphenotus rigidus*.*Cypricardia shumardana* Swallow.1863. *Cypricardia* (?) *Shumardiana*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 95.

Ste. Genevieve L. S.: Back of Prairie du Rocher, Illinois.

Cypricardia subplana. See *Edmondia subplana*.

Cypricardia swallowana Miller.

1863. *Cypricardia* (?) *occidentalis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 96. (Not *C. occidentalis* Hall, 1852.)

Harrison County, Missouri.

1883. *Cypricardia swallowana*. Miller, Am. Pal. Foss., 2d ed., p. 310.

Cypricardia undulata Gurley.

1883. *Cypricardia undulata*. Gurley, New Pal. Foss., Bull. No. 1, p. 3.
Lower Coal Measures: Newport, Vermilion County, Indiana.

Cypricardia ventricosa Hall.

1860. *Cypricardia ventricosa*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 110.
Goniatite L. S.: Rockford, Indiana.

Cypricardia wheeleri. See *Schizodus wheeleri*.

CYPRICARDINIA Hall, 1859.**Cypricardinia carbonaria** Meek.

1871. *Cypricardinia*? *carbonaria*. Meek, Proc. Acad. Nat. Sci. Phil., p. 163.
Lower Coal Measures: Newark, Ohio.

1875. *Cypricardinia*? *carbonaria*. Meek, Pal. Ohio, vol. 2, p. 342, pl. 19, figs. 8a, b.
Lower Coal Measures: Newark, Ohio.

1887. *Cypricardinia* (?) *carbonaria*. Herrick, Bull. Den. Univ., vol. 2, p. 35, pl. 4,
figs. 17, 18.
Coal Measures: Flint Ridge, Ohio.

Cypricardinia consimilis Hall.

1885. *Cypricardinia consimilis*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 486, pl. 79, figs.
18-21; pl. 96, fig. 3.

Waverly S. S.: Licking and Medina counties, Ohio; Warren, Pennsylvania.

Cypricardinia indianensis Hall.

1856. *Cypricardia Indianensis*. Hall, Trans. Albany Inst., vol. 4, p. 18.
St. Louis L. S.: Spergen Hill, Indiana.

1882. *Cypricardinia* (?) *Indianensis*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1,
p. 58, pl. 7, figs. 10-14.

St. Louis Group: Spergen Hill and Bloomington, Indiana; Alton, Illinois.

1883. *Cypricardinia Indianensis*. Hall, 12th Rep. Geol. Surv. Ind., p. 342, pl. 30,
figs. 10-14.

St. Louis Group: Alton, Illinois; Spergen Hill, Bloomington, and Lanesville, Indiana.

Cypricardinia scitula Herrick.

1888. *Cypricardinia* (*Microdon*?) *scitula*. Herrick, Bull. Den. Univ., vol. 4, p. 38,
pl. 6, fig. 8.

Waverly Group: Moot's Run, Licking County, Ohio.

1891. *Cypricardinia* (cf. *scitula*). Herrick, Bull. Geol. Soc. Am., vol. 2, p. 46, pl. 1,
fig. 15.

Upper Waverly Group: Scioto County, Ohio.

1895. *Cypricardinia scitula*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 17, fig. 8.
Cuyahoga Shale: Moot's Run, Licking County, Ohio.

Cypricardinia sulcifera Winchell.

1863. *Sanguinolites sulciferus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 14.
Yellow S. S.: Burlington, Iowa.

1885. *Cypricardinia sulciferus*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 487, pl. 79, fig. 22.
Yellow S. S.: Burlington, Iowa.

Cypricardinia (species undetermined).

1888. *Cypricardinia*? sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 43.
Waverly Group: Rushville, Ohio.

(CYPRICARDITES Conrad, 1841.)

Cypricardites (species undetermined).

1895. *Cypricardites* sp. ? Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 7.
Highest horizon of Waverly Group: Rushville, Ohio.

CYPRIDINA Milne-Edwards, 1838.

Cypridina herzeri Ulrich.

1891. *Cypridina herzeri*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 209, pl. 14, figs. 9a-c.
Near top of Waverly Group: Richfield, Ohio.

(CYRTIA Dalman, 1827.)

Cyrtia acutirostris. See *Cyrtina acutirostris*.

Cyrtia gigas. See *Syringothyris gigas*.

CYRTINA Davidson, 1858.

Cyrtina acutirostris Shumard.

1855. *Cyrtia acutirostris*. Shumard, Geol. Rep. Mo., p. 204, pl. C, figs. 3a-c.
Lithographic L. S.: Hannibal and Louisiana, Missouri.
1888. *Cyrtina acutirostris*. Herrick, Bull. Den. Univ., vol. 4, pl. 11, fig. 20.
Waverly Group: Lodi, Ohio.
1894. *Cyrtina acutirostris*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 29, fig. 18.
Chouteau L. S.: Pike County, Missouri.
1894. *Cyrtina acutirostris*. Keyes, Mo. Geol. Surv., vol. 5, p. 89, pl. 89, figs. 10a, b.
Louisiana L. S.: Louisiana and Hannibal, Missouri.
1895. *Cyrtina acutirostris*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 28, figs. 38-42, 44, 54.
Chouteau L. S.: Pike County, Missouri.

Cyrtina burlingtonensis Rowley.

1893. *Cyrtina burlingtonensis*. Rowley, Am. Geol., vol. 12, p. 308, pl. 14, figs. 15-17.
Lower Burlington L. S.: Louisiana, Missouri.

Cyrtina lachrymosa Hall.

1894. *Cyrtina lachrymosa*. Hall, 13th Ann. Rep. N. Y. State Geol., p. 650.
Waverly Group: Richfield, Ohio.
1894. *Cyrtina lachrymosa*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 29, fig. 21.
Waverly Group: Richfield, Ohio.
1895. *Cyrtina lachrymosa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, p. 362, pl. 28, figs. 36, 37, 47.
Waverly Group: Richfield, Ohio.
1897. *Cyrtina lachrymosa*. Hall, 14th Rep. N. Y. State Geol., p. 358, pl. 8, figs. 1-3.
Waverly Group: Richfield, Ohio.

Cyrtina neogenes Hall and Clarke.

1895. *Cyrtina* sp. ? Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 39, figs. 25-28.
Burlington L. S. (chert beds): Burlington, Iowa.
1895. *Cyrtina neogenes*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 84, fig. 41.
Chert of Burlington, L. S.: Burlington, Iowa.
1897. *Cyrtina neogenes*. Hall, 14th Rep. N. Y. State Geol., p. 372, pl. 8, figs. 4-8.
Chert of Burlington L. S.: Burlington, Iowa.

Cyrtina (species undetermined).

1888. *Cyrtina* sp. Herrick, Bull. Den. Univ., vol. 3, p. 47, pl. 8, fig. 18.
Waverly Group: Licking County, Ohio.

CYRTOCERAS Goldfuss, 1832.**Cyrtoceras ashmanni Miller.**

1889. *Cyrtoceras ashmanni*. Miller, N. A. Geol. and Pal., p. 433, fig. 728.
Warsaw Group: Spargen Hill, Indiana.

Cyrtoceras cessator Hall and Whitfield.

1877. *Cyrtoceras cessator*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4,
p. 278, pl. 6, fig. 15.
Coal Measures: Near Eberhardt Mill, White Pine, Nevada.

Cyrtoceras curtum Meek and Worthen.

1860. *Cyrtoceras curtum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 468.
Coal Measures: Grayville, Illinois.
1861. *Cyrtoceras (Aploceras) curtum*. Meek and Worthen, Proc. Acad. Nat. Sci.
Phil., p. 148.
1866. *Cyrtoceras (Aploceras) curtum*. Meek and Worthen, Geol. Surv. Ill., vol. 2,
p. 388, pl. 30, figs. 1a-c.
Upper Coal Measures; Grayville, Illinois.

Cyrtoceras dilatatum Meek and Worthen.

1860. *Cyrtoceras ? dilatatum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 468.
Upper Coal Measures: Near Springfield, Illinois.
1866. *Cyrtoceras ? dilatatum*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 389,
pl. 29, fig. 2.
Upper Coal Measures: Springfield, Illinois.

Cyrtoceras dorsatum Swallow.

1858. *Cyrtoceras dorsatum*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 197.
Permian: Near Smoky Hill Fork, Kansas.

Cyrtoceras kansasense Miller and Gurley.

1895. *Cyrtoceras kansasense*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat.
Hist., p. 88, pl. 5, figs. 5-7.
Upper Coal Measures: Kansas City, Missouri.

Cyrtoceras rockfordense Winchell.

1865. *Cyrtoceras Rockfordense*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 132.
Marshall Group: Rockford, Indiana.

Cyrtoceras tessellatum Winchell.

1862. *Cyrtoceras tessellatum ?* Winchell, Am. Jour. Sci. (2), vol. 33, p. 362. (Not
C. tessellatum De Koninck, 1844.)
Marshall S. S.

Cyrtoceras unicorne Winchell.

1863. *Cyrtoceras unicorne*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 23.
Yellow S. S.: Burlington, Iowa.

CYRTOLITES Conrad, 1838.**Cyrtolites gillanus White and St. John.**

1868. *Cyrtolites ? Gillianus*. White and St. John, Trans. Chicago Acad. Sci., vol.
1, p. 123, fig. 8.
Upper Coal Measures: Madison County, Iowa.
Bull. 153—14

CYSTELASMA Miller, 1891.

Cystelasma lanesvillense Miller.

1891. *Cystelasma lanesvillense*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 13, pl. 1, figs. 15, 16.
Warsaw Group: Lanesville, Indiana.
1892. *Cystelasma lanesvillense*. Miller, 17th Rep. Geol. Surv. Ind., p. 623, pl. 1, figs. 15, 16.
Warsaw Group: Lanesville, Indiana.

CYSTODICTYA Ulrich, 1882.

Cystodictya americana Ulrich.

1890. *Cystodictya americana*. Ulrich, Geol. Surv. Ill., vol. 8, p. 494, pl. 76, figs. 5, 5a.
Keokuk Group: King's Mountain Tunnel, Kentucky; Bentonsport, Iowa.
1894. *Cystodictya americana*. Keyes, Mo. Geol. Surv., vol. 5, p. 17.
Keokuk L. S.: Bentonsport, Iowa.

Cystodictya angusta Ulrich.

1888. *Cystodictya angusta*. Ulrich, Bull. Den. Univ., vol. 4, p. 82, pl. 14, fig. 20.
Waverly Group: Moot's Run, Licking County, Ohio.

Cystodictya carbonaria Meek.

1871. *Ptilodictya (Stictopora) carbonaria*. Meek, Proc. Acad. Nat. Sci. Phil., p. 160.
Lower Coal Measures: Newark, Ohio.
1875. *Ptilodictya (Stictopora) carbonaria*. Meek, Pal. Ohio, vol. 2, p. 328, pl. 20, figs. 3a, b.
Coal Measures: Newark, Ohio.
1887. *Cystodictya carbonaria*. Foerste, Bull. Den. Univ., vol. 2, p. 74, pl. 7, figs. 2a-c.
Coal Measures: Bald Hill, Ohio.

Cystodictya lineata Ulrich.

1884. *Cystodictya lineata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 37, pl. 2, figs. 4-4c.
Keokuk Group: King's Mountain tunnel, Kentucky.

Cystodictya lineata, var. *major* Ulrich.

1890. *Cystodictya lineata*, var. *major*. Ulrich, Geol. Surv. Ill., vol. 8, p. 495, pl. 76, fig. 3.
† St. Louis L. S.: † Alton, Illinois.

Cystodictya nitida Ulrich.

1890. *Cystodictya nitida*. Ulrich, Geol. Surv. Ill., vol. 8, p. 493, pl. 76, figs. 4-4c.
Keokuk Group: Bentonsport, Iowa.
1894. *Cystodictya nitida*. Keyes, Mo. Geol. Surv., vol. 5, p. 17.
Keokuk L. S.: † St. Francisville, Missouri; Bentonsport, Iowa.

Cystodictya ocellata Ulrich.

1882. *Cystodictya ocellata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 5, p. 170, pl. 8, figs. 3, 3a.
† Keokuk Group: Near Somerset, Kentucky.
1884. *Cystodictya ocellata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, pl. 2, figs. 3, 3a.

Cystodictya pustulosa Ulrich.

1890. *Cystodictya pustulosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 495, pl. 76, figs. 2, 2a.
Keokuk Group: King's Mt. Tunnel, Kentucky; Keokuk, Iowa; Nauvoo, Illinois.
1894. *Cystodictya pustulosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 17.
Keokuk L. S.: Keokuk, Iowa.

Cystodictya simulans Ulrich.

1888. *Cystodictya simulans*. Ulrich, Bull. Den. Univ., vol. 4, p. 81, pl. 13, fig. 10.
Waverly Group: Moot's Run, Licking County, Ohio.
Keokuk Group: Warsaw, Illinois; Keokuk, Iowa.

Cystodictya zigzag Ulrich.

1888. *Cystodictya zigzag*. Ulrich, Bull. Den. Univ., vol. 4, p. 81, pl. 13, figs. 11, 11a.
Cuyahoga Shale: Richfield, Ohio.
Keokuk Group: Keokuk, Iowa.

Cystodictya (species undetermined).

1888. *Cystodictya*, sp. undet. Ulrich, Bull. Den. Univ., vol. 4, p. 83.
Waverly Group: Moot's Run, Licking County, Ohio.

CY THERE Müller, 1785.**Cythere americana** Shumard.

1858. *Cythere* (*Beyrichia*) *Americana*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 227.
Upper Coal Measures: Valley of Verdigris River, Kansas.

Cythere carbonaria. See *Leperditia carbonaria*.**Cythere crassimarginata** Winchell.

1862. *Cythere crassimarginata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 429.
Marshall S. S.: Battle Creek, Liberty, Moscow, Pointe aux Barques, and near Napoleon, Michigan.
1865. *Cythere crassimarginata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 133.
Marshall Group: Hillsdale, Michigan.
1870. *Cythere crassimarginata*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 259.
Waverly Group: Rockville, Ohio.

Cythere cyclas. See *Cythere nebrascensis*.**Cythere nebrascensis** Geinitz.

1866. *Cythere Nebrascensis*. Geinitz, Carb. und Dyas in Nebr., p. 2, tab. 1, fig. 2.
Nebraska City, Nebraska.
1866. *Cythere Cyclas?* var. Geinitz, Carb. und Dyas in Nebr., p. 2, tab. 1, figs. 3, 4. (Not *C. cyclas* of v. Keyserling.)
Nebraska City, Nebraska.
1872. *Cythere Nebrascensis*. Meek, U. S. Geol. Surv. Nebr., p. 237, pl. 11, figs. 2, † 3a, b.
Upper Coal Measures: Nebraska City, Nebraska.
1888. *Cythere nebrascensis?* Keyes, Proc. Acad. Nat. Sci. Phil., p. 243.
Lower Coal Measures: Des Moines, Iowa.
1891. *Cythere nebrascensis*. White, Bull. U. S. Geol. Surv., No. 77, p. 30, pl. 4, fig. 20.
Permian: Military Crossing, Baylor County, Texas.

Cythere ohioensis Herrick.

1888. *Ostracode crustacean*. Herrick, Bull. Den. Univ., vol. 3, pl. 3, fig. 19.
Waverly Group: Licking County, Ohio.
1888. *Cythere ohioensis*. Herrick, Bull. Den. Univ., vol. 4, p. 60, pl. 8, fig. 8.
Waverly Group: Ashland County, Newark and Rushville, Ohio.
1895. *Cythere ohioensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 19, fig. 8.
Keokuk Group: Rushville, Ohio.

Cythere simplex White and St. John.

- *1867. *Cythere simplex*. White and St. John, Prelim. Not. New Gen. and Spec. Foss.
St. Louis L. S.: Hamilton County, Iowa.

Cythere simplex White and St. John—Continued.

1868. *Cythere simplex*. White and St. John, Trans. Chicago Acad. Sci., vol. 1, p. 127.

St. Louis L. S.: Sternberg's Mill, on Boone River, 6 miles southwest from Webster City, Hamilton County, Iowa.

Cythere (species undetermined).

1872. *Cythere* sp. Meek, U. S. Geol. Surv. Nebr., p. 237, pl. 11, figs. 1a-d.
Upper Coal Measures: Nebraska City, Nebraska; Union County, Iowa.
1884. *Cythere?* spp. indett Jones and Kirkby, Geol. Mag. (3), vol. 1, p. 261, pl. 12, figs. 11a-c.
Lower Coal Measures: Horton, Nova Scotia.

CYTHERELLA Jones and Bosquet, 1848.

Cytherella inflata. See *Carbonia fabulina*.

Cytherella ovatiformis Ulrich.

1891. *Cytherella ovatiformis*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 209, pl. 17, figs. 3, 4a-c.
Chester Group: Caldwell County, Kentucky.

Cytherella unioniformis Herrick.

1891. *Cytherella unioniformis*. Herrick, Bull. Geol. Soc. Am., vol. 2, p. 44, pl. 1, figs. 8-10.
Upper Waverly Group: Scioto County, Ohio.

CYTHERELLINA Jones and Holl, 1869.**Cytherellina glandella** Whitfield.

1882. *Cytherellina glandella*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 94, pl. 9, figs. 28, 29.
St. Louis Group: Spergen Hill, Indiana.
1883. *Cytherellina glandella*. Hall, 12th Rep. Geol. Surv. Ind., pl. 32, figs. 28, 29.

(CYTHERODON Hall and Whitfield, 1873.)

Cytherodon cuneus. See *Schizodus cuneus*.

DALMANITES Barrande, 1852.**Dalmanites ? cuyahogæ** Claypole.

1884. *Dalmanites ? Cuyahogæ*. Claypole, Geol. Mag. (3), vol. 1, p. 306, fig. A, p. 505.
Cuyahoga Shale: Akron, Ohio.
1884. *Dalmanites ? Cuyahogæ*. Woodward, Monog. Brit. Carb. Tril, p. 79, fig. 6.
Cuyahoga Shale: Akron, Ohio.
1887. *Dalmanites ? cuyahogæ*. Herrick, Bull. Den. Univ., vol. 2, p. 55, pl. 2, fig. 33.

DAWSONELLA Bradley, 1874.**Dawsonella meeki** Bradley.

1872. *Anomphalus Meeki*. Bradley, Am. Jour. Sci. (3), vol. 4, p. 88, fig. 2.
Coal Measures: Petty's Ford of the Little Vermillion River, below Georgetown, Vermillion County, Illinois.
1874. *Dawsonella Meeki*. Bradley, Am. Jour. Sci. (3), vol. 7, p. 151.
1880. *Dawsonella Meeki*. Dawson, Am. Jour. Sci. (3), vol. 20, p. 413, figs. 12, 13.
Coal Measures: Pelly's Fort, Vermillion River, Illinois.
1881. *Dawsonella Meeki*. Whitfield, Am. Jour. Sci. (3), vol. 21, p. 127, figs. 5, 6.
1883. *Dawsonella meeki*. White, 3d Ann. Rep. U. S. Geol. Surv., p. 453, pl. 2, figs. 3, 4.

DECADOCRINUS Wachsmuth and Springer, 1879.

Decadocrinus ægina Hall.

1864. *Scaphiocrinus* (*Poteriocrinus*) *ægina*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 57.
Waverly Group: Richfield, Ohio.
1875. *Scaphiocrinus* (*Poteriocrinus*) *ægina*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 174, pl. 12, figs. 11, 12.
Waverly Group: Richfield, Ohio.

Decadocrinus bayensis Meek and Worthen.

1865. *Poteriocrinus* (*Scaphiocrinus*) *Bayensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 157.
Chester Group: Bay City, Pope County, Illinois.
1873. *Scaphiocrinus Bayensis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 550, pl. 20, fig. 2.
Chester Group: Bay City, Pope County, Illinois.

Decadocrinus columbiensis Worthen.

1882. *Poteriocrinus columbiensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 22.
Chester L. S.: Near Columbia, Monroe County, Illinois.
1883. *Poteriocrinus Columbiensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 293, pl. 29, fig. 6.
Chester L. S.: Near Columbia, Monroe County, Illinois.

Decadocrinus depressus Meek and Worthen.

1870. *Scaphiocrinus depressus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 27.
Keokuk Group: Crawfordsville, Indiana.
1873. *Scaphiocrinus depressus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 492, pl. 14, fig. 8.
Keokuk Group: Crawfordsville, Indiana.

Decadocrinus fascellus Meek and Worthen.

1869. *Scaphiocrinus fascellus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 146.
Lower Burlington L. S.: Burlington, Iowa.
1873. *Scaphiocrinus fascellus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 424, pl. 1, fig. 3.
Burlington L. S.: Burlington, Iowa.

Decadocrinus fountainensis Worthen.

1882. *Poteriocrinus fountainensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 17.
St. Louis L. S.: Fountain Creek, Monroe County, Illinois.
1883. *Poteriocrinus Fountainensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 286, pl. 30, fig. 11.
St. Louis L. S.: Fountain Creek, Monroe County, Illinois.

Decadocrinus halli Hall.

1861. *Scaphiocrinus halli*. Hall, Desc. New Spec. Crin., p. 7.
Burlington, L. S.
1861. *Scaphiocrinus Halli*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 308.
Burlington L. S.: Burlington, Iowa.

Decadocrinus juvenis Meek and Worthen.

1869. *Scaphiocrinus juvenis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 146.
Lower Burlington L. S.: Burlington, Iowa.

Decadocrinus juvenis Meek and Worthen—Continued.

1873. *Scaphiocrinus juvenis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 417, pl. 2, fig. 8.

Burlington L. S.: Burlington, Iowa.

Decadocrinus lyrioep Hall.

1864. *Scaphiocrinus (Poteriocrinus) lyrioep*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 58.

Waverly Group: Richfield, Ohio.

1875. *Scaphiocrinus (Poteriocrinus) lyrioep*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 175, pl. 12, fig. 10.

Waverly Group: Richfield, Ohio.

Decadocrinus milleri Wetherby.

1881. *Poteriocrinus milleri*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 3, p. 330, pl. 9, figs. 12, 13.

Kaskaskia Group: Pulaaski County, Kentucky.

Decadocrinus pencilliformis Worthen.

1882. *Poteriocrinus pencilliformis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 9.

Upper Keokuk L. S.: Hamilton, Illinois.

1883. *Poteriocrinus pencilliformis*. Worthen, Geol. Surv. Ill., vol. 7, p. 276, pl. 28, fig. 9.

Keokuk L. S.: Hamilton, Illinois.

Decadocrinus pleias Hall.

1864. *Poteriocrinus pleias*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 57.

Waverly Group: Richfield, Ohio.

1875. *Poteriocrinus pleias*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 173, pl. 12, fig. 8.

Waverly Group: Richfield, Ohio.

Decadocrinus scalaris Meek and Worthen.

1869. *Scaphiocrinus scalaris*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 145.

Upper Burlington L. S.: Burlington, Iowa.

1873. *Scaphiocrinus scalaris*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 421, pl. 2, fig. 10.

Burlington L. S.: Burlington, Iowa.

Decadocrinus stimpsoni Lyon.

1869. *Zeacrinus Stimpsoni*. Lyon, Trans. Am. Phil. Soc., vol. 8, p. 465, pl. 27, figs. m, m1.

Subcarboniferous: Kentucky.

Decadocrinus subtortuosus Hall.

1864. *Scaphiocrinus subtortuosus*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 59.

Waverly Group: Richfield, Ohio.

1875. *Scaphiocrinus subtortuosus*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 177, pl. 12, figs. 15, 16.

Waverly Group: Richfield, Ohio.

(DELOCRINUS Miller and Gurley, 1890.)

Delocrinus hemisphericus. See *Ceriocrinus hemisphericus*.

Delocrinus missouriensis. See *Ceriocrinus missouriensis*.

(DENTALINA D'Orbigny, 1826.)

Dentalina priscilla. See *Nodosinella priscilla*.

DENTALIUM Linnæus, 1740.

Dentalium acutisulcatum Gurley.

1883. *Dentalium acutisulcatum*. Gurley, New Carb. Foss., Bull. No. 1, p. 7.
Lower Coal Measures: Newport, Vermilion County, Illinois.

Dentalium annulostriatum Meek and Worthen.

1870. *Dentalium annulostriatum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 45.
Coal Measures: Danville, Illinois.
1873. *Dentalium? annulostriatum*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 589, pl. 29, fig. 7.
Coal Measures: Danville, Illinois.
1888. *Dentalium annulostriatum*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 234.
Lower Coal Measures: Des Moines, Iowa.
1891. *Dentalium annulostriatum*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 251.
Lower Coal Measures: Des Moines, Iowa.

Dentalium? barquense Winchell.

1862. *Dentalium? Barquense*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 425.
Marshall Group: Pointe aux Barques, Michigan.
1865. *Dentalium? Barquense*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 131.
Marshall Group: Pointe aux Barques, Michigan.

Dentalium canna White.

1874. *Dentalium canna*. White, Prelim. Rep. Inv. Foss., p. 23.
Carboniferous (Coal Measures): Near Salt Lake, New Mexico, and near Relief Spring, Arizona.
1877. *Dentalium canna*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 156, pl. 12, figs. 6a, b.
Carboniferous: Near Salt Lake, New Mexico, and near Relief Spring, Arizona.

Dentalium grandævum Winchell.

1863. *Dentalium grandævum*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 18.
Yellow Sandstone: Burlington, Iowa.

Dentalium granvillense Herrick.

1888. *Dentalium granvillense*. Herrick, Bull. Den. Univ., vol. 3, p. 92.
Waverly Group: Licking County, Ohio.

Dentalium illinoiense Worthen.

1883. *Dentalium Illinoiense*. Worthen, Geol. Surv. Ill., vol. 7, p. 325.
Chester L. S.: Chester, Illinois.
1890. *Dentalium illinoiense*. Worthen, Geol. Surv. Ill., vol. 8, p. 145, pl. 23, fig. 1.

Dentalium meekianum Geinitz.

1866. *Dentalium Meekianum*. Geinitz, Carb. und Dyas in Nebr., p. 13, tab. 1, fig. 20.
Nebraska City, Nebraska.
1872. *Dentalium Meekianum*. Meek, U. S. Geol. Surv. Nebr., p. 224, pl. 11, figs. 16a, b.
Upper Coal Measures: Nebraska City, Nebraska.
1873. *Dentalium Meekianum?* Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 590, pl. 29, fig. 8.
Coal Measures: Danville, Illinois.
1888. *Dentalium meekianum*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 234.
Lower Coal Measures: Des Moines, Iowa.
1891. *Dentalium meekianum*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 251.
Lower Coal Measures: Des Moines, Iowa.

Dentalium meekianum Geinitz—Continued.

1894. *Dentalium meekianum*. Keyes, Mo. Geol. Surv., vol. 5, p. 133.
Upper Coal Measures: Kansas City, Missouri.
1897. *Dentalium conf. meekianum*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 38.
Upper Coal Measures: Crawford County, Arkansas.

Dentalium missouriense Swallow.

1863. *Dentalium Missouriense*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 99.
Archimedes L. S.: Chester, Illinois; and St. Marys, Missouri.
1894. *Dentalium missouriense*. Keyes, Mo. Geol. Surv., vol. 5, p. 133.
Kaaskaskia L. S.: Ste. Mary, Missouri.

Dentalium obsoletum. See Dentalium sublaeve.**Dentalium primarium Hall.**

1858. *Dentalium primarium*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 666, pl. 23, fig. 16.
Warsaw L. S.: Hancock County, Illinois.
1894. *Dentalium primarium*. Keyes, Mo. Geol. Surv., vol. 5, p. 133.
Keokuk L. S.: Warsaw, Illinois.

Dentalium sublaeve Hall.

1858. *Dentalium obsoletum*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 724, pl. 29, figs. 16, 17, 17a.
Coal Measures.
1877. *Dentalium sublaeve*. Hall, Miller's Am. Pal. Foss., p. 244.
1891. *Dentalium sublaeve*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 252.
Lower Coal Measures: Des Moines, Iowa.

Dentalium venustum Meek and Worthen.

1861. *Dentalium venustum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 145.
St. Louis L. S.: Waterloo, Monroe County, Illinois.
1866. *Dentalium venustum*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 284, pl. 19, fig. 8.
St. Louis Group: Waterloo, Monroe County, Illinois.

Dentalium (species undetermined.)

1868. *Dentalium* (2 species). Dawson, Acad. Geol., p. 309.
Carboniferous L. S.: Economy and Pugwash, Nova Scotia.
1887. *Dentalium* sp. ? Herrick, Bull. Den. Univ., vol. 2, p. 146, pl. 14, fig. 12.
Coal Measures: Flint Ridge, Ohio.

DERBYA Waagen, 1884.**Derbya affinis Hall and Clarke.**

1892. *Derbya affinis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 349, pl. 11 B, figs. 45. (Included with *D. cymbula* in explanation of pl. 11 B.)
Upper Coal Measures: Near Kansas City, Missouri.
1897. *Derbya affinis*. Hall, 14th Rep. N. Y. State Geol., p. 349, pl. 5, figs. 10, 11.
Upper Coal Measures: Near Kansas City, Missouri.

Derbya bennetti Hall and Clarke.

1892. *Derbya Bennetti*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 348, pl. 11A, figs. 34-35.
Upper Coal Measures: Near Kansas City, Missouri.
1892. *Derbya Bennetti*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 17, figs. 5-8.
Upper Coal Measures: Kansas City, Missouri.
1897. *Derbya Bennetti*. Hall, 14th Rep. N. Y. State Geol., p. 347, pl. 5, figs. 3-8.
Upper Coal Measures: Near Kansas City, Missouri.

Derbya biloba Hall.

1883. *Streptorhynchus biloba*. Hall, Rep. N. Y. State Geol. for 1882, pl. (11) 41, figs. 4, 5.
Coal Measures: Winterset, Iowa.
1892. *Derbya (?) biloba*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 350, pl. 11, figs. 4, 5.
Coal Measures: Winterset, Iowa.
1897. *Derbya (?) biloba*. Hall, 14th Rep. N. Y. State Geol., p. 350, pl. 5, figs. 17, 18.
Upper Coal Measures: Winterset, Iowa.

Derbya broadheadi Hall and Clarke.

1892. *Derbya Broadheadi*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 347, pl. 11A, figs. 23, 24.
Upper Coal Measures: Kansas City, Missouri.
1897. *Derbya Broadheadi*. Hall, 14th Rep. N. Y. State Geol., p. 346, pl. 5, figs. 15, 16.
Upper Coal Measures: Near Kansas City, Missouri.

Derbya costatula Hall and Clarke.

1892. *Derbya (?) costatula*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 346, pl. 11B, figs. 16, 17.
Chester L. S.: Crittenden County, Kentucky.
1897. *Derbya ? costatula*. Hall, 14th Rep. N. Y. State Geol., p. 346, pl. 5, fig. 9.
Chester L. S.: Crittenden County, Kentucky.

Derbya crassa Meek and Hayden.

1852. *Orthis umbraculum?* Hall, Stansb. Exped. Gt. Salt Lake, p. 412, pl. 3, fig. 6.
Carboniferous: Missouri River, above Fort Leavenworth.
1852. *Orthis umbraculum?* Owen, Geol. Rep. Wis., Iowa, and Minn., pl. 5, fig. 11.
Carboniferous: Missouri River, near mouth of Keg Creek, and at Council Bluffs.
1852. *Orthis arachnoidea*. Roemer, Kreid. von Texas, p. 89, taf. 1, figs. 9a, b.
Carboniferous: San Saba Valley, Texas.
1858. *Orthisina crassa*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 261.
Coal Measures: Leavenworth, Kansas.
1858. *Orthis crenistria*. Marcou, Geol. N. A., p. 49.
Mountain L. S.: Pecos Village, New Mexico.
1859. *Orthisina crassa*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 26.
Coal Measures: Leavenworth, Kansas.
1859. *Orthisina umbraculum?* Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 26.
Upper Coal Measures: Fort Riley and Cottonwood Creek, Kansas.
1860. *Orthis lasallensis*. McChesney, Desc. New Pal. Foss., p. 32.
Upper Coal Measures: Lasalle, Illinois.
1860. *Orthis richmonda*. McChesney, Desc. New Pal. Foss., p. 32.
Coal Measures: 12 miles northwest of Richmond, Missouri.
1860. *Orthis pratteni*. McChesney, Desc. New Pal. Foss., p. 32.
Coal Measures: Charbonier, Missouri.
1861. *Streptorhynchus umbraculum*. Newberry, Ives' Colo. Expl. Exped., p. 125.
Upper Carboniferous (Cherty L. S.): Canyon of Cascade River near the junction of the Colorado Chiquito with the Colorado; at Agua Azul; east of Fort Defiance; at Santa Fe; at Ojo Vernal; and on Cottonwood Creek, Kansas.
1864. *Hemipronites crassus*. Meek and Hayden, Pal. Upper Mo., p. 26, pl. 1, figs. 7a-d.
Coal Measures: Leavenworth City, Kansas.
1866. *Orthis richmondi*. McChesney, Ill. New Spec. Foss., pl. 1, figs. 5a-c.
1865. *Orthis lasallensis*. McChesney, Ill. New Spec. Foss., pl. 1, figs. 6a, b.

Derbya crassa Meek and Hayden—Continued.

1868. *Hemipronites crassus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 28, pl. 1, figs. 5a-c.
Coal Measures: 12 miles northeast of Richmond, Missouri.
1868. *Hemipronites lasallensis*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 28, pl. 1, figs. 6a, b.
Upper Coal Measures: Lasalle, Illinois.
1872. *Hemipronites crassus*. Meek, U. S. Geol. Surv. Nebr., p. 174, pl. 5, figs. 10a-c; pl. 8, fig. 1.
Upper Coal Measures: Nebraska City, Bennett's Mill, Wyoming, Cedar Bluff, Rock Bluff, Plattsmouth, Bellevue, Omaha, Peru, Rulo, and Brownsville, Nebraska.
Coal Measures: Kansas; Iowa; Missouri; Illinois.
Chester L. S.: West Virginia.
1873. *Hemipronites crassus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 570, pl. 25, fig. 12.
Upper Coal Measures: Lasalle, Illinois.
1876. *Hemipronites crenistria*. White, Powell's Rep. Geol. Uinta Mts., p. 90.
Lower Aubrey Group: Near Echo Park, and at confluence of Grand and Green rivers, Utah.
Upper Aubrey Group: Beehive Point, near Horseshoe Canyon, Utah.
1877. *Hemipronites crenistria*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 124, pl. 10, fig. 9a.
Carboniferous: Meadow Creek, south of Fillmore; Star District, Picacho range; North Fork of Lewiston Canyon, Oquirrh range; below Ophir City; Kanab Canyon, Wasatch range; pass between Rush and Cedar Valleys; and east side of Mount Nebo, Utah; top of Grass Mountain, Ely range; Fossil Hill; Camp Apache; Old Potosi Mine; Tenney's Ranch; Kaibab Plateau; and at confluence of White Mountain and Black rivers, Nevada.
1883. *Streptorhynchus Richmondi*. Hall, Rep. N. Y. State Geol. for 1882, pl. (10) 40, figs. 10, 11.
Coal Measures: Iowa.
1884. *Hemipronites crassus*. White, 13th Rep. Geol. Surv. Ind., p. 129, pl. 26, figs. 4-11.
Coal Measures: Lodi, Eugene, Perrysville, Merom, Big Creek, and New Harmony, Indiana.
1887. *Hemipronites crassus*. Herrick, Bull. Den. Univ., vol. 2, p. 50, pl. 2, fig. 19.
Coal Measures: Flint Ridge, Ohio.
1888. *Streptorhynchus crenistria*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 229.
Lower Coal Measures: Des Moines, Iowa.
1891. *Streptorhynchus crassum*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 580, pl. 13, figs. 11, 12.
Maxville L. S.: Ohio.
1892. *Derbya crassa*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 17, figs. 1-4, 9.
Upper Coal Measures: Kansas City, Missouri; Winterset, Iowa.
1892. *Derbya crassa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 10, figs. 10, 11; pl. 11A, figs. 28-33; pl. 11B, figs. 23, 24; pl. 20, figs. 12, 13.
Upper Coal Measures: Near Kansas City, Missouri, and Winterset, Iowa.
1894. *Streptorhynchus crenistria*. Keyes, Mo. Geol. Surv., vol. 5, p. 67, pl. 38, figs. 8a-h.
Coal Measures: Kansas City, Clinton, and Lexington, Missouri.
1895. *Streptorhynchus crassum*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 468, pl. 9, figs. 11, 12.
Maxville L. S.: Ohio.

Derbya crassa Meek and Hayden—Continued.

1897. *Derbya crassa*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 28.
 Upper Coal Measures: Poteau Mountain, Indian Territory.
 Lower Coal Measures: Conway County, Arkansas.

Derbya cymbula Hall and Clarke.

1892. *Derbya cymbula*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 348, pl. 11B, figs. 2, 3.
 Upper Coal Measures: Near Kansas City, Missouri.
 1897. *Derbya cymbula* Hall, 14th Rep., N. Y. State Geol., p. 348, pl. 6, figs. 1, 2.
 Upper Coal Measures: Near Kansas City, Missouri.

Derbya kaskaskiensis McChesney.

1860. *Orthis kaskaskiensis*. McChesney, Desc. New Pal. Foss., p. 31.
 Kaskaskia L. S.: Kaskaskia and Chester, Illinois.
 1892. *Derbya kaskaskiensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 11B, fig. 6.
 Chester L. S.: Crittenden County, Kentucky.

Derbya keokuk Hall.

1858. *Orthis keokuk*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 640, pl. 19, figs. 5a, b.
 Keokuk L. S.: Keokuk, Iowa; Warsaw and Nauvoo, Illinois.
 1883. *Streptorhynchus keokuk*. Hall, Rep. N. Y. State Geol. for 1882, pl. (11) 41, figs. 1-3.
 Keokuk Group: New Providence, Indiana; Keokuk, Iowa.
 1890. *Orthis keokuk*. Gordon, Am. Geol., vol. 5, p. 261, pl. fig. 7.
 Keokuk Group.
 1892. *Derbya keokuk*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 11, figs. 1-3.
 Keokuk beds: Keokuk, Iowa; New Providence, Indiana.
 1894. *Orthis keokuk*. Keyes, Mo. Geol. Surv., vol. 5, p. 63.
 Keokuk L. S.: Wayland, Missouri.

Derbya robusta Hall.

1858. *Orthis robusta*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 713, pl. 28, figs. 5a-d.
 Lower Coal Measures: St. Clair County, Illinois.
 1883. *Streptorhynchus robustus*. Hall, Rep. N. Y. State Geol. for 1882, pl. (10) 40, figs. 12-16.
 Coal Measures: Illinois.
 1892. *Derbya robusta*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 10, figs. 12-17.
 Coal Measures: St. Clair County, Illinois.
 1892. *Derbya robusta* (?) Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 11B, figs. 7, 8.
 Upper Coal Measures: Winterset, Iowa; near Kansas City, Missouri.

Derbya ruginosa Hall and Clarke.

1892. *Derbya ruginosa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 346, pl. 11A, figs. 25-27.
 Keokuk L. S.: New Providence, Indiana.
 1897. *Derbya ruginosa*. Hall, 14th Rep. N. Y. State Geol., p. 345, pl. 5, figs. 12-14.
 Keokuk L. S.: New Providence, Indiana.

Derbya (species undetermined).

1892. *Derbya* sp. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 11B, fig. 1.
 Upper Coal Measures: Kansas City, Missouri.

DEXIOBLA Winchell, 1863.**Dexiobia halli** Winchell.

1863. *Dexiobia Halli*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 11.
 Yellow S. S.: Burlington, Iowa.

Dexiobia ovata Hall.

1858. *Cardiomorpha ovata*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 522, pl. 7, figs. 10a-c.
Chemung Group: Burlington, Iowa.
1888. *Cardiopsis (Dexiobia?) ovata*. Herrick, Bull. Den. Univ., vol. 4, p. 38, pl. 4, figs. 5-7.
Waverly Group: Ohio.
1889. *Dexiobia ovata*. Herrick, Am. Geol., vol. 3, pl. 2, figs. 5-7.
1895. *Dexiobia ovata*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 5-7.
Kinderhook: Gann and Newark, Ohio.

Dexiobia whitei Winchell.

1863. *Dexiobia Whitei*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 11.
Yellow S. S.: Burlington, Iowa.

DICHOOCRINUS Münster, 1839.**Dichocrinus angustus White.**

1862. *Dichocrinus angustus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 19.
Upper Burlington L. S.: Burlington, Iowa.
1897. *Dichocrinus angustus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 768, pl. 76, fig. 11.
Upper Burlington L. S.: Near Burlington, Iowa.

Dichocrinus blairi Miller.

1891. *Dichocrinus blairi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 36, pl. 8, fig. 12.
Keokuk Group: Boonville, Missouri.
1892. *Dichocrinus blairi*. Miller, 17th Rep. Geol. Surv. Ind., p. 646, pl. 8, fig. 12.
Keokuk Group: Boonville, Missouri.
1894. *Dichocrinus blairi*. Keyes, Mo. Geol. Surv., vol. 4, p. 205, pl. 25, fig. 7.
Keokuk L. S.: Boonville, Missouri.
1897. *Dichocrinus Blairi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 778, pl. 75, fig. 3.
Warsaw L. S.: Boonville, Missouri.

Dichocrinus bozemanensis Miller and Gurley.

1897. *Dichocrinus bozemanensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 44, pl. 3, fig. 4.
Burlington or Keokuk Group: Bridger Mountains, near Bozeman, Montana.

Dichocrinus chesterensis. See Pterotoocrinus chesterensis.**Dichocrinus cinctus Miller and Gurley.**

1890. *Dichocrinus cinctus*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 21, pl. 4, figs. 10-12.
Kinderhook Group: Legrand, Iowa.
1890. *Dichocrinus cinctus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 342, pl. 4, figs. 10-12.
Kinderhook Group: Legrand, Iowa.
1897. *Dichocrinus cinctus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 764, pl. 75, fig. 5, pl. 77, figs. 4a-c,
Kinderhook Group: Legrand, Marshall County, Iowa.

Dichocrinus constrictus Meek and Worthen.

1860. *Dichocrinus constrictus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 381.
Warsaw L. S.: Bloomington, Indiana.
1866. *Dichocrinus constrictus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 263, pl. 19, figs. 2a-c.
St. Louis Group: Bloomington, Indiana.

Dichocrinus conus Meek and Worthen.

1860. *Dichocrinus conus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 381.
Burlington L. S.: Cedar Creek, Warren County, Illinois.
1866. *Dichocrinus conus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 169, pl. 16,
figs. 5a, b.
Burlington L. S.: Burlington, Iowa.
1897. *Dichocrinus conus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 770, pl.
75, fig. 6.
Lower Burlington L. S.: Burlington, Iowa.

Dichocrinus cornigerus*. See Talarocrinus cornigerus.*Dichocrinus coxanus Worthen.**

1882. *Dichocrinus coxanus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 35.
Upper Keokuk L. S.: Hamilton, Illinois.
1883. *Dichocrinus Coxanus*. Worthen, Geol. Surv. Ill., vol. 7, p. 313, pl. 27, fig. 7.
Keokuk L. S.: Hamilton, Illinois.
1897. *Dichocrinus coxanus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 763,
pl. 76, fig. 9.
Keokuk L. S.: Hamilton, Illinois.

Dichocrinus crassitestus White.

1862. *Dichocrinus crassitestus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 19.
Upper Burlington L. S.: Burlington, Iowa.
1897. *Dichocrinus crassitestus*. Wachsmuth and Springer, N. Am. Crin. Cam., p.
769, pl. 76, figs. 6a-c.
Upper Burlington L. S.: Burlington, Iowa.

Dichocrinus crassus*. See Pterotocrinus crassus.*Dichocrinus delicatus Wachsmuth and Springer.**

1897. *Dichocrinus delicatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 766,
pl. 77, fig. 13.
Kinderhook Group: Marshall County, Iowa.
Lower Burlington L. S.: Burlington, Iowa.

Dichocrinus dichotomus Hall.

1860. *Dichocrinus dichotomus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 85, pl. 1,
fig. 5.
Warsaw L. S.: Warsaw, Illinois.
1897. *Dichocrinus dichotomus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 777.
Warsaw L. S.: Warsaw, Illinois.

Dichocrinus elegans*. See Talarocrinus symmetricus.**Dichocrinus expansus*. See Dichocrinus polydactylus.****Dichocrinus ficus Lyon and Casseday.**

1862. *Dichocrinus ficus*. Lyon and Casseday, Proc. Am. Acad. Arts and Sci. Bost.,
vol. 5, p. 24.
Subcarboniferous L. S.: Clear Creek, Hardin County, Kentucky; Montgomery
County, Indiana.
1873. *Dichocrinus ficus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 502, pl. 14,
fig. 5.
Keokuk Group: Crawfordsville, Indiana.
1875. *Dichocrinus ficus*. Meek and Worthen, Geol. Surv. Ill., vol. 6, p. 515, pl. 29,
fig. 7.
Keokuk Group: Crawfordsville, Indiana.
1894. *Dichocrinus ficus*. Keyes, Mo. Geol. Surv., vol. 4, p. 204.
Keokuk L. S.: Boonville, Missouri; Keokuk, Iowa.
1897. *Dichocrinus ficus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 774, pl.
78, figs. 16a, b.
Keokuk L. S.: Crawfordsville, Indiana; Hardin County, Kentucky.

Dichocrinus hamiltonensis Worthen.

1882. *Dichocrinus hamiltonensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 35.
Upper Keokuk Group: Hamilton, Illinois.
1883. *Dichocrinus Hamiltonensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 313, pl. 27, fig. 10.
Keokuk L. S.: Hamilton, Illinois.
1897. *Dichocrinus Hamiltonensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 772, pl. 76, fig. 10.
Keokuk Group: Hamilton, Illinois.

Dichocrinus humbergi Miller.

1891. *Dichocrinus Humberti*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 26, pl. 3, figs. 9, 10.
Keokuk Group: Boonville, Missouri.
1891. *Dichocrinus humbergi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 36, pl. 6, fig. 38.
Keokuk Group: Boonville, Missouri.
1892. *Dichocrinus humbergi*. Miller, 17th Rep. Geol. Surv. Ind., p. 646, pl. 6, fig. 38.
Keokuk Group: Boonville, Missouri.
1897. *Dichocrinus Humberti*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 777.
Warsaw L. S.: Boonville, Missouri.

Dichocrinus huntsvillae Wachsmuth and Springer.

1897. *Dichocrinus Huntsvillae*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 773, pl. 75, fig. 4.
St. Louis Group: Huntsville and Whitesburg, Alabama.

Dichocrinus inornatus Wachsmuth and Springer.

1890. *Dichocrinus inornatus*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 190, pl. 16, figs. 1, 2.
Kinderhook Group: Legrand, Iowa.
1897. *Dichocrinus inornatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 770, pl. 77, figs. 12a, b.
Kinderhook Group: Legrand, Marshall County, Iowa.

Dichocrinus lachrymosus Hall.

1860. *Dichocrinus lachrymosus*. Hall, Supp., vol. 1, pt. 2, Geol. Rep. Ia., p. 84.
Burlington L. S.: Burlington, Iowa.
1872. *Dichocrinus lachrymosa*. Hall, Photo. Plates of Crinoids, pl. 2, fig. 11
1897. *Dichocrinus lachrymosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 764, pl. 77, figs. 2a-c.
Upper Burlington L. S.: Burlington, Iowa.

Dichocrinus laevis Hall.

1860. *Dichocrinus laevis*. Hall, Supp., vol. 1, pt. 2, Geol. Rep. Ia., p. 83.
Burlington L. S.: Burlington, Iowa.
1897. *Dichocrinus laevis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 765, pl. 77, figs. 7a-c.
Lower Burlington L. S.: Burlington, Iowa.

Dichocrinus lineatus Meek and Worthen.

1869. *Dichocrinus lineatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 69.
Lower Burlington L. S.: Burlington, Iowa.
1873. *Dichocrinus lineatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 440, pl. 3, fig. 1.
Burlington L. S.: Burlington, Iowa.
1894. *Dichocrinus lineatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 203.
Lower Burlington L. S.: Hannibal and Louisiana, Missouri.

Dichocrinus lineatus Meek and Worthen—Continued.

1897. *Dichocrinus lineatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 761,
pl. 76, figs. 4a-c.
Lower Burlington L. S.: Burlington, Iowa.

Dichocrinus liratus Hall.

1861. *Dichocrinus liratus*. Hall, Desc. New Spec. Crin., p. 5.
Burlington L. S.
1861. *Dichocrinus liratus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 290.
Burlington L. S.: Burlington, Iowa.
1872. *Dichocrinus liratus*. Hall, Photo. Plates of Crinoids, pl. 2, figs. 7, 8.
1894. *Dichocrinus liratus*. Keyes, Mo. Geol. Surv., vol. 4, p. 203.
Upper Burlington L. S.: Ash Grove, Missouri.
1897. *Dichocrinus liratus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 759,
pl. 76, fig. 8; pl. 77, figs. 3a, b.
Upper Burlington L. S.: Burlington, Iowa.

Dichocrinus oblongus Wachsmuth and Springer.

1897. *Dichocrinus oblongus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 759,
pl. 77, fig. 9.
Warsaw L. S.: Near Bloomington, Indiana.

Dichocrinus ornatus Wachsmuth and Springer.

1862. *Dichocrinus sculptus*. Lyon and Casseday, Proc. Am. Acad. Arts and Sci.
Bost., vol. 5, p. 25 (not *D. sculptus* DeK. and LeH., 1853).
Carboniferous: Hardin County, Kentucky.
1881. *Dichocrinus ornatus*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil.,
p. 258 (Rev. Palæoc. II, p. 84).
1897. *Dichocrinus ornatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 762,
pl. 77, fig. 6.
St. Louis Group: Hardin County, Kentucky; Mount Pleasant, Iowa.

Dichocrinus ovatus Owen and Shumard.

1850. *Dichocrinus ovatus*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2),
vol. 2, p. 61, pl. 7, fig. 9.
Carboniferous L. S.: Burlington, Iowa.
1852. *Dichocrinus ovatus*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn.,
p. 590, tab. 5A, figs. 9a, b.
Carboniferous L. S.: Burlington, Iowa.
1897. *Dichocrinus ovatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 760,
pl. 76, fig. 7, pl. 77, figs. 8a, b.
Lower Burlington L. S.: Burlington, Iowa.

Dichocrinus parvulus Miller.

1891. *Dichocrinus parvulus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 27, pl. 4,
figs. 7, 8.
Keokuk Group: Boonville, Missouri.
1897. *Dichocrinus parvulus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 778.
Warsaw L. S.: Boonville, Missouri.

Dichocrinus pendens Wachsmuth and Springer.

1897. *Dichocrinus pendens*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 774.
pl. 78, fig. 15.
Upper Burlington L. S.: Burlington, Iowa.

Dichocrinus pentalobus Lyon and Casseday.

1862. *Cotyledonocrinus pentalobus*. Lyon and Casseday, Proc. Am. Acad. Arts and
Sci. Bost., vol. 5, p. 26.
Carboniferous: Grayson Springs, Grayson County, Kentucky.
1897. *Dichocrinus pentalobus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 775, pl. 78, figs. 11a-c.
Kaskaskia Group: Grayson Springs and Sloan's Valley, Kentucky.

Dichocrinus pisum Meek and Worthen.

1869. *Dichocrinus pisum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 69.
Upper Burlington L. S.: Burlington, Iowa.
1873. *Dichocrinus pisum*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 441, pl. 3, fig. 2.
Burlington L. S.: Burlington, Iowa.
1897. *Dichocrinus pisum*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 763, pl. 76, fig. 5, pl. 77, fig. 10.
Lower Burlington L. S.: Burlington, Iowa.

Dichocrinus plicatus Hall.

1861. *Dichocrinus plicatus*. Hall, Desc. New Spec. Crin., p. 4.
Burlington L. S.
1861. *Dichocrinus plicatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 288.
Burlington L. S.: Burlington, Iowa.
1872. *Dichocrinus plicatus*. Hall, Photo Plates of Crinoids, pl. 2, figs. 9, 10.
1897. *Dichocrinus plicatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 758, pl. 77, figs. 5a, b.
Upper Burlington L. S.: Burlington, Iowa.

Dichocrinus pocillum. See Dichocrinus scitulus.**Dichocrinus polydactylus Lyon and Casseday.**

1862. *Dichocrinus polydactylus*. Lyon and Casseday, Proc. Am. Acad. Arts and Sci. Bost., vol. 5, p. 18.
Keokuk Group: Hardin County, Kentucky; Montgomery County, Indiana.
1868. *Dichocrinus expansus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 343.
Keokuk Group: Crawfordsville, Indiana.
1873. *Dichocrinus expansus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 500, pl. 14, fig. 1.
Keokuk Group: Crawfordsville, Indiana.
1897. *Dichocrinus polydactylus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 756, pl. 77, figs. 1a, b.
Keokuk L. S.: Crawfordsville, Indiana.

Dichocrinus protuberans. See Pterotocrinus protuberans.**Dichocrinus scitulus Hall.**

1861. *Dichocrinus scitulus*. Hall, Desc. New Spec. Crin., p. 4.
Burlington L. S.
1861. *Dichocrinus pocillum*. Hall, Desc. New Spec. Crin., p. 5.
Burlington L. S.
1861. *Dichocrinus scitulus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 289.
Burlington L. S.: Burlington, Iowa.
1861. *Dichocrinus pocillum*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 291.
Burlington L. S.: Burlington, Iowa.
1872. *Dichocrinus pocillum*. Hall, Photo. Plates of Crinoids, pl. 2, figs. 14, 16, 17.
1872. *Dichocrinus scitulus*. Hall, Photo. Plates of Crinoids, pl. 2, figs. 12, 13.
1897. *Dichocrinus scitulus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 767, pl. 78, figs. 13a, b, 14.
Upper and Lower Burlington L. S.: Burlington, Iowa.

Dichocrinus sculptus. See Dichocrinus ornatus.**Dichocrinus sexlobatus. See Talarocrinus sexlobatus.****Dichocrinus simplex. See Talarocrinus simplex.**

Dichocrinus striatus Owen and Shumard.

1850. *Dichocrinus striatus*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 62, pl. 7, fig. 10.
Carboniferous L. S.: Burlington, Iowa.
1852. *Dichocrinus striatus*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 590, tab. 5A, figs. 10a, b.
Carboniferous L. S.: Burlington, Iowa.
1894. *Dichocrinus striatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 203, pl. 25, fig. 8.
Upper Burlington L. S.: Ash Grove, Missouri.
1897. *Dichocrinus striatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 577, pl. 77, figs. 11a, b.
Upper Burlington L. S.: Burlington, Iowa.

Dichocrinus superstes Wachsmuth and Springer.

1897. *Dichocrinus superstes*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 766, pl. 76, fig. 12.
Kaskaskia Group: Pulaski County, Kentucky; Huntsville, Alabama.

Dichocrinus symmetricus. See *Talarocrinus symmetricus*.**Dichocrinus ulrichi** Miller and Gurley.

1890. *Dichocrinus ulrichi*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 365, pl. 8, figs. 12, 13.
Keokuk Group: Bono, Indiana.
1897. *Dichocrinus Ulrichi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 772.
Keokuk Group: Bono, Lawrence County, Indiana.

DICHOTRYPA Ulrich, 1890.**Dichotrypa elegans** Ulrich.

1890. *Dichotrypa elegans*. Ulrich, Geol. Surv. Ill., vol. 8, p. 500, pl. 76, figs. 8-8d.
St. Louis Group: Elizabethtown, Kentucky; Jersey and Monroe counties, Illinois.

Dichotrypa expatiata Ulrich.

1890. *Dichotrypa expatiata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 501.
St. Louis Group: Alton, Illinois.

Dichotrypa flabellum Rominger.

1866. *Fistulipora flabellum*. Rominger, Proc. Acad. Nat. Sci. Phil., p. 122.
Warsaw L. S.: Spergen Hill, Indiana.
1890. *Dichotrypa flabellum*. Ulrich, Geol. Surv. Ill., vol. 8, p. 501, pl. 77, figs. 1, 1b.
St. Louis Group: Spergen Hill, Indiana.

Dichotrypa intermedia Ulrich.

1890. *Dichotrypa intermedia*. Ulrich, Geol. Surv. Ill., vol. 8, p. 500, pl. 76, figs. 9-9c.
St. Louis Group: Alton, Illinois; St. Louis, Missouri.
1894. *Dichotrypa intermedia*. Keyes, Mo. Geol. Surv., vol. 5, p. 18.
St. Louis Group: St. Louis, Missouri.

Dichotrypa lyroides Ulrich.

1890. *Dichotrypa lyroides*. Ulrich, Geol. Surv. Ill., vol. 8, p. 502, pl. 77, figs. 2-2b.
St. Louis Group: Southern Kentucky.

DICTYONEMA Hall, 1852.**Dictyonema blairi** Gurley.

1886. *Dictyonema blairi*. Gurley, Jour. Geol., vol. 4, p. 82.
Chouteau L. S.: Sedalia, Missouri.

DICTYOPHYTON Hall, 1863.

Dictyophyton (Clathrosporgia) abacus Hall.

1884. *Dictyophyton (Clathrosporgia) abacus*. Hall, 35th Ann. Rep. N. Y. State Mus. Nat. Hist., p. 474, pl. 19, figs. 2-4.
Waverly Group: Warren, Pennsylvania.

Dictyophyton cattiliforme. See *Phragmodictya catilliformis*.**Dictyophyton cylindricum Whitfield.**

1881. *Dictyophyton cylindricum*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 19, pl. 4, fig. 3.
Keokuk Group: Crawfordsville, Indiana.
1884. *Dictyophyton cylindricum*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 475.
Keokuk Group: Crawfordsville, Indiana.

Dictyophyton newberryi. See *Thamnodictya newberryi*.**Dictyophyton randalli Hall.**

1890. *Dictyophyton Randallii*. Hall, 9th Ann. Rep. N. Y. State Geol., p. 57.
Waverly Group: Warren, Pennsylvania.

Dictyophyton (?) redfieldi Hall.

1863. *Dictyophyton redfieldi*. Hall, 16th Rep. N. Y. State Cab. Nat. Hist., p. 88.
Waverly Group: Harrisville and Richfield, Ohio.
1884. *Dictyophyton (?) Redfieldi*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 474, pl. 18, fig. 9.
Waverly S. S.: Harrisville and Akron, Ohio.

Dictyophyton sacculus Hall.

1863. *Dictyophyton richfieldi?* Hall, 16th Rep. N. Y. State Cab. Nat. Hist., pl. 4, fig. 6.
1884. *Dictyophyton sacculum*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 473.
Waverly S. S.: Richfield, Ohio.

Dictyophyton tenue Hall.

1884. *Dictyophyton tenue*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 474, pl. 19, fig. 5.
Waverly Group: Warren, Pennsylvania.

DIDYMOPHLEPS Scudder, 1878.

Didymophleps contusa Scudder.

1878. *Termes contusus*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 19, p. 300.
Coal Measures: Vermilion County, Illinois.
1885. *Didymophleps contusa*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 330, pl. 29, fig. 6.
Carboniferous: Vermilion County, Illinois.
1890. *Didymophleps contusa*. Scudder, Foss. Insc. N. A., vol. 1, p. 294, pl. 15, fig. 6.
Carboniferous: Vermilion County, Illinois.

DIECONEURA Scudder, 1884.

Dieconeura arcuata Scudder.

1885. *Dieconeura arcuata*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 336, pl. 30, fig. 4.
Carboniferous: Mazon Creek, Illinois.
1890. *Dieconeura arcuata*. Scudder, Foss. Insc. N. A., vol. 1, p. 300, pl. 16, fig. 4.
Carboniferous: Mazon Creek, Illinois.

***Dicoeneura rigida* Scudder.**

1885. *Dicoeneura rigida*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 336, pl. 29, fig. 10.

Carboniferous: Pittston, Pennsylvania.

1890. *Dicoeneura rigida*. Scudder, Foss. Insc. N. A., vol. 1, p. 300, pl. 15, fig. 10.
Carboniferous: Pittston, Pennsylvania.

DIELASMA King, 1850.***Dielasma bovidens* Morton.**

1836. *Terebratula bovidens*. Morton, Am. Jour. Sci. (1), vol. 29, p. 150, pl. 2, fig. 4.
Coal Measures: Ohio Valley.

1856. *Terebratula millepunctata*. Hall, Pac. R. R. Rep., vol. 3, p. 101, pl. 2, figs. 1, 2.
Carboniferous: Pecos Village, New Mexico.

1856. *Terebratula millepunctata*. Hall, Trans. Albany Inst., vol. 4, p. 35.
Upper Carboniferous: Topeka, Kansas.

1859. *Terebratula millepunctata*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 26.
Upper Coal Measures: Leavenworth, and near Indianola, Kansas.

1859. *Terebratula elongata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 392.
Permian: Guadalupe Mountains.

*1861. *Terebratula geniculosa*. McChesney, Desc. New Pal. Foss., p. 82.

1868. *Terebratula bovidens*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 37, pl. 1, figs. 2a-c.
Coal Measures: Lasalle, Illinois.

1872. *Terebratula bovidens*. Meek, U. S. Geol. Surv. Nebr., p. 187, pl. 1, figs. 7a-d, pl. 2, fig. 4.
Upper Coal Measures: Plattsmouth, Nebraska; Indian Creek, Kansas; Lasalle, Illinois; New Mexico.

Coal Measures: Ohio, Iowa, Missouri, Kansas, Illinois.

1873. *Terebratula bovidens*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 572, pl. 25, fig. 15.
Upper and Lower Coal Measures: Illinois.

1874. *Dielasma? bovidens*. White, Prelim. Rep. Inv. Foss., p. 21.
Carboniferous (Coal Measures): (Far West).

1877. *Terebratula (Dielasma) bovidens*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 144, pl. 11, figs. 10a-c.
Carboniferous: Near Santa Fe, New Mexico; a few miles south of St. George, Utah; top of Grass Mountain, Ely Range, 30 miles north of Pioche, Nevada.

1884. *Terebratula hastata*. Walcott, Pal. Eureka Dist., p. 224, pl. 7, figs. 7, 7b.
Lower Carboniferous: Eureka District, Nevada.

1884. *Terebratula bovidens*. White, 13th Rep. Geol. Surv. Ind., p. 137, pl. 32, figs. 17-19.
Coal Measures: Perrysville, Eugene, Newport, Lodi, and Terre Haute (west of), Indiana; Posey, Warrick, Perry, and Crawford counties, Indiana.

1894. *Dielasma bovidens*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 53, figs. 21-25.
Carboniferous L. S.: Harrison County, Missouri.

1894. *Terebratula bovidens*. Keyes, Mo. Geol. Surv., vol. 5, p. 105.
Upper Coal Measures: Kansas City, Missouri.

1895. *Dielasma bovidens*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 81, figs. 29-35.
Upper Carboniferous L. S.: Kansas City, Missouri; southern Indiana; Harrison County, Missouri.

***Dielasma turgida* var. *elongata* Weller.**

1897. *Dielasma turgida* var. *elongata*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 260, pl. 18, fig. 6.
Batesville S. S.: Batesville, Arkansas.

***Dielasma* (species undetermined).**

1894. *Dielasma* sp.? Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 53, figs. 13, 14.
Chester L. S.: Caldwell County, Kentucky.
1895. *Dielasma* sp.? Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 81, figs. 36, 37.
Chester Group: Caldwell County, Kentucky.

DIPELTIS Packard, 1885.***Dipeltis diplodiscus* Packard.**

1885. *Dipeltis diplodiscus*. Packard, Am. Nat., vol. 19, p. 293.
Carboniferous: Mazon Creek, Illinois.
1886. *Dipeltis diplodiscus*. Packard, Mem. Nat. Acad. Sci., vol. 3, pt. 2, p. 145, pl. 5, figs. 2, 2a.
Carboniferous: Mazon Creek, Illinois.

DIPHYPHYLLUM Lonsdale, 1845.***Diphyphyllum* (species undetermined).**

1877. *Diphyphyllum* — (f). Whiteaves, Geol. Surv. Canada, Rept. of Prog., 1875-76, p. 102.
Devonian or Carboniferous: Peace River, Canada.

DIPLOPORA Young and Young, 1875.***Diplopore bifurcata* Ulrich.**

1890. *Diplopore bifurcata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 637, pl. 62, figs. 12, 12a.
Chester Group: Chester, Illinois.
1894. *Diplopore bifurcata*. Keyes, Mo. Geol. Surv., vol. 5, p. 33.
Kaskaskia L. S.: Chester, Illinois.

***Diplopore biserialis* Ulrich.**

1890. *Diplopore biserialis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 637, pl. 62, figs. 11-11c.
Lower Coal Measures: Seville, Illinois.

DIPLOSTYLUS Salter, 1863.***Diplostylus dawsoni* Salter.**

1863. *Diplostylus Dawsoni*. Salter, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 77, fig. 6.
Coal Measures: Joggins, Nova Scotia.

(DISCINA Lamark, 1819.)

Discina capax. See *Orbiculoidea capax*.

Discina capuliformis. See *Orbiculoidea capuliformis*.

Discina connata. See *Lingulodiscus connata*.

Discina convexa. See *Orbiculoidea convexa*.

Discina gallaheri. See *Orbiculoidea gallaheri*.

Discina illinoisensis. See *Orbiculoidea illinoisensis*.

Discina keokuk. See *Orbiculoidea keokuk*.

Discina magnifica. See *Orbiculoidea magnifica*.

Discina manhattanensis. See *Orbiculoidea manhattanensis*.

Discina meekana. See *Orbiculoidea missouriensis*.

Discina missouriensis. See *Orbiculoidea missouriensis*.

Discina munda. See *Orbiculoidea munda*.

Discina newberryi. See *Lingulodiscus newberryi*.

Discina nitida. See *Orbiculoidea nitida*.

Discina patellaris. See *Orbiculoidea patellaris*.

Discina pleurites. See *Lingulodiscus pleurites*.

Discina saffordi. See *Orbiculoidea saffordi*.

Discina sampsoni. See *Orbiculoidea sampsoni*.

Discina subtrigonalis. See *Orbiculoidea subtrigonalis*.

Discina tenuilineata. See *Orbiculoidea tenuilineata*.

Discina trigonalis. See *Orbiculoidea subtrigonalis*.

Discina varsoviensis. See *Orbiculoidea varsoviensis*.

DISCITES De Haan, 1825.

Discites hartti. See *Stroboceras hartti*.

Discites toddanus Gurley.

1883. *Discites Toddanus*. Gurley, New Carb. Foss. Bull. No. 1, p. 7.

Upper Coal Measures: Kansas City, Missouri.

1890. *Discites Toddanus*. Anon., The Naturalist (Kansas City), vol. 4, No. 10, fig.

Coal Measures: Brush Creek, Kansas City, Missouri.

Discites tuberculatus. See *Nautilus tuberculatus*.

DITHYROCARIS Scouler, 1844.

Dithyrocaris carbonaria Meek and Worthen.

1870. *Dithyrocaris carbonarius*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 55.

Coal Measures: Danville, Illinois.

1873. *Dithyrocaris carbonarius*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 618, pl. 32, fig. 1.

Coal Measures: Danville, Illinois.

1884. *Dithyrocaris carbonarius*. White, 13th Rep. Geol. Surv. Ind., p. 178, pl. 39, fig. 3.

Coal Measures: Danville, Illinois.

DIZYGOCRINUS Wachsmuth and Springer, 1897.

Dizygocrinus andrewsianus McChesney.

1860. *Actinocrinus andrewsianus*. McChesney, Desc. New Pal. Foss., p. 27.

Burlington L. S.: Burlington, Iowa.

1865. *Actinocrinus andrewsianus*. McChesney, Ill. New Spec. Foss., pl. 5, figs. 5a-b, pl. 10, fig. 2.

1868. *Actinocrinus Andrewsianus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 20, pl. 5, figs. 5a, b.

Burlington L. S.: Burlington, Iowa.

1897. *Dizygocrinus andrewsianus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 433, pl. 29, figs. 2a-d.

Upper Burlington L. S.: Burlington, Iowa.

***Disygocrinus biturbinatus* Hall.**

1858. *Actinocrinus biturbinatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 616, pl. 16, figs. 5, 6a-c.
 Keokuk L. S.: Nauvoo, Illinois.
1894. *Batocrinus lyonanus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 18, pl. 3, figs. 4, 5.
 St. Louis Group: Hardin County, Kentucky.
1894. *Batocrinus biturbinatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 184.
 Keokuk L. S.: Boonville, Missouri.
1897. *Disygocrinus biturbinatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 427, pl. 33, fig. 9.
 Keokuk Group: Keokuk, Iowa.

***Disygocrinus cantonensis* Wachsmuth and Springer.**

1897. *Disygocrinus cantonensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 423, pl. 33, figs. 8a, b.
 Keokuk Group: Canton and Edwardsville, Indiana.

***Disygocrinus crawfordsvillensis* Miller.**

1891. *Batocrinus crawfordsvillensis*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 64, pl. 10, figs. 11, 12.
 Keokuk Group: Crawfordsville, Indiana.
1892. *Batocrinus crawfordsvillensis*. Miller, 17th Rep. Geol. Surv. Ind., p. 674, pl. 10, figs. 11, 12.
 Keokuk Group: Crawfordsville, Indiana.
1897. *Disygocrinus crawfordsvillensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 417.
 Keokuk L. S.: Near Crawfordsville, Indiana.

***Disygocrinus dodecadactylus* Meek and Worthen.**

1861. *Actinocrinus dodecadactylus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 131.
 Burlington L. S.: Burlington, Iowa.
1866. *Actinocrinus dodecadactylus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 205, pl. 15, figs. 3a-c.
 Burlington L. S.: Burlington, Iowa.
1894. *Batocrinus dodecadactylus*. Keyes, Mo. Geol. Surv., vol. 4, p. 183.
 Upper Burlington L. S.: White Ledge, Marion County, Missouri.
1897. *Disygocrinus dodecadactylus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 432, pl. 29, figs. 1a-c.
 Upper Burlington L. S.: Burlington, Iowa.

***Disygocrinus euconus* Meek and Worthen.**

1865. *Batocrinus (Alloprosallocrinus) euconus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 164.
 St. Louis Group: Six miles south of Anna, Illinois.
1884. *Batocrinus subconicus*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 26.
 Keokuk L. S.: Montgomery County, Indiana.
1890. *Batocrinus subconicus*. Worthen, Geol. Surv. Ill., vol. 8, p. 84, pl. 13, figs. 4, 4a.
 Keokuk L. S.: Montgomery County, Indiana.
1894. *Batocrinus euconus*. Keyes, Mo. Geol. Surv., vol. 4, p. 184.
 Keokuk L. S.: Boonville, Missouri.
1897. *Disygocrinus euconus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 430, pl. 35, figs. 7a, b.
 Warsaw L. S.: Spergen Hill, Indiana; Union County, Illinois; Taylor County, Kentucky.

Dizygocrinus euconus var. abscissus Rowley and Hare.

1891. *Batocrinus abscissus*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 115, pl. 3, fig. 6.

Keokuk L. S.: Indian Creek, 6 miles southwest of Curryville, Missouri.

1891. *Batocrinus venustus*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 67, pl. 11, figs. 11, 12.

Keokuk Group: Boonville, Missouri.

1892. *Batocrinus venustus*. Miller, 17th Rep. Geol. Surv. Ind., p. 677, pl. 11, figs. 11, 12.

Keokuk Group: Boonville, Missouri.

1897. *Dizygocrinus euconus* var. *abscissus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 431, pl. 46, fig. 9.

Keokuk Group and Warsaw L. S.: Taylor County, Kentucky; Boonville and Curryville, Missouri.

Dizygocrinus facetus Miller and Gurley.

1890. *Batocrinus facetus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 363, pl. 6, fig. 8.

Keokuk Group: Near Canton, Indiana.

1897. *Dizygocrinus facetus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 418, pl. 33, fig. 12.

Keokuk Group: Canton, Indiana.

Dizygocrinus gorbyi Miller.

1891. *Batocrinus gorbyi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 63, pl. 10, fig. 10.

Keokuk Group: Boonville, Missouri.

1892. *Batocrinus gorbyi*. Miller, 17th Rep. Geol. Surv. Ind., p. 673, pl. 10, fig. 10.

Keokuk Group: Boonville, Missouri.

1897. (?) *Dizygocrinus Gorbyi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 426.

Warsaw L. S.: Boonville, Missouri.

Dizygocrinus gurleyi Miller.

1891. *Batocrinus gurleyi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 66, pl. 11, figs. 9, 10.

Keokuk Group: Boonville, Missouri.

1892. *Batocrinus gurleyi*. Miller, 17th Rep. Geol. Surv. Ind., p. 676, pl. 11, figs. 9, 10.

Keokuk Group: Boonville, Missouri.

1897. *Dizygocrinus Gurleyi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 422, pl. 34, fig. 19.

Warsaw L. S.: Boonville, Missouri.

Dizygocrinus indianensis Lyon and Casseday.

1860. *Actinocrinus Indianaensis*. Lyon and Casseday, Am. Jour. Sci. (2), vol. 29, p. 75.

Subcarboniferous: Montgomery County, Indiana.

1897. *Dizygocrinus indianensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 415, pl. 33, figs. 6a, b; pl. 35, fig. 5.

Keokuk Group: Crawfordsville, Indiana.

Dizygocrinus indianensis var. simplex Wachsmuth and Springer.

1897. *Dizygocrinus indianensis* var. *simplex*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 416, pl. 33, fig. 7.

Keokuk Group: Crawfordsville, Indiana.

Dizygocrinus montgomeryensis Worthen.

1884. *Batocrinus montgomeryensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 25.

Keokuk L. S.: Montgomery County, Indiana.

Disygocrinus montgomeryensis Worthen—Continued.

1890. *Batocrinus montgomeryensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 83, pl. 12, figs. 2, 2a.
 Keokuk L. S.: Montgomery County, Indiana.
1891. *Batocrinus gurleyi*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 115, pl. 3, fig. 7.
 Keokuk L. S.: Indian Creek, Pike County, Missouri.
1891. *Batocrinus sweeti*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 116, pl. 3, fig. 8.
 Keokuk L. S.: Indian Creek, 6 miles southwest of Curryville, Missouri.
1897. *Disygocrinus montgomeryensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 428, pl. 33, figs. 3, 4; pl. 46, fig. 10.
 Keokuk Group: Crawfordsville, Indiana; Keokuk, Iowa.; Pike County, Missouri.

Disygocrinus montgomeryensis var. *unibrachiatus* Wachsmuth and Springer.

1897. *Disygocrinus montgomeryensis* var. *unibrachiatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 429, pl. 33, figs. 5a-c.
 Keokuk L. S.: Keokuk, Iowa.

Disygocrinus mutabilis Wachsmuth and Springer.

1897. *Disygocrinus mutabilis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 429, pl. 35, figs. 8-11.
 Keokuk Group: Indian Creek, Montgomery County, Indiana.

Disygocrinus originarius Wachsmuth and Springer.

1881. *Eretmocrinus originarius*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 348. (Rev. Palæocr. II, p. 174.)
 Keokuk L. S.: Near Bono, Lawrence County, Indiana.
1882. *Eretmocrinus varsouviensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 30.
 Warsaw Beds: Warsaw, Illinois.
1883. *Eretmocrinus Varsoviensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 306, pl. 28, fig. 14.
 Warsaw Beds: Warsaw, Illinois.
1894. *Eretmocrinus originarius*. Keyes, Mo. Geol. Surv., vol. 4, p. 178.
 Keokuk L. S.: Boonville, Missouri.
1897. *Disygocrinus originarius*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 421, pl. 33, figs. 1a, b.
 Keokuk Group: Bono and Canton, Indiana.
 Warsaw L. S.: Boonville, Missouri.

Disygocrinus originarius var. *adultus* Wachsmuth and Springer.

1881. *Eretmocrinus adultus*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 349. (Rev. Palæocr. II, p. 175.)
 Keokuk L. S.: Canton and Edwardsville, Indiana.
1891. *Batocrinus mediocris*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 62, pl. 10, fig. 9.
 Keokuk Group: Boonville, Missouri.
1891. *Batocrinus boonvillensis*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 65, pl. 10, fig. 13.
 Keokuk Group: Boonville, Missouri.
1892. *Batocrinus mediocris*. Miller, 17th Rep. Geol. Surv. Ind., p. 672, pl. 10, fig. 9.
 Keokuk Group: Boonville, Missouri.
1892. *Batocrinus boonvillensis*. Miller, 17th Rep. Geol. Surv. Ind., p. 675, pl. 10, fig. 13.
 Keokuk Group: Boonville, Missouri.

***Disygocrinus originarius* var. *adultus* Wachsmuth and Springer—Cont'd.**

1897. *Disygocrinus originarius* var. *adultus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 422, pl. 35, figs. 14, 15.
Keokuk Group: Bono, Lawrence County, Indiana.
Warsaw L. S.: Boonville, Missouri.

***Disygocrinus rotundus* Shumard.**

1848. *Actinocrinites*. Christy, Letters on Geol., pl. 1, figs. 3, 4.
Carboniferous Limestone: Oquawka, Illinois.
1855. *Actinocrinus rotundus*. Shumard, Geol. Rep. Mo., p. 191, pl. A. figs. 2a, b.
Encrinital L. S.: Rocheport, Boone County; near Palmyra, Marion County, Missouri.
1860. *Actinocrinus oblatius*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 38.
Burlington L. S.: Burlington, Iowa; Rocheford, Missouri.
1860. *Actinocrinus rotundus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 3, fig. 1.
1893. *Batocrinus oblatius*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 12, pl. 1, figs. 21, 22.
Burlington L. S.: Rocheford, Missouri.
1894. *Batocrinus rotundus*. Keyes, Mo. Geol. Surv., vol. 4, p. 182, pl. 23, figs. 6a, b.
Upper Burlington L. S.: Ash Grove, Sedalia, Rocheport, Hannibal, Palmyra, and Lagrange, Missouri; Quincy, Illinois; Bonaparte and Burlington, Iowa.
1897. *Disygocrinus rotundus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 431, pl. 29, figs. 3a-g, 4.
Upper Burlington L. S.: Burlington, Iowa; Henderson County, Illinois; Palmyra, Missouri.

***Disygocrinus unionensis* Worthen.**

1890. *Batocrinus unionensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 84, pl. 12, figs. 5, 5a; pl. 13, fig. 3.
St. Louis Group: Union County, Illinois.
1891. *Batocrinus davisii*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 116, pl. 3, fig. 9.
Kaskaskia Group: Near Flag Pond, Virginia.
1891. *Batocrinus pulchellus*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 68, pl. 11, figs. 13, 14.
Keokuk Group: Boonville, Missouri.
1892. *Batocrinus pulchellus*. Miller, 17th Rep. Geol. Surv. Ind., p. 678, pl. 11, figs. 13, 14.
Keokuk Group: Boonville, Missouri.
1894. *Batocrinus pulchellus*. Keyes, Mo. Geol. Surv., vol. 4, p. 184.
Keokuk L. S.: Boonville, Missouri.
1897. *Disygocrinus unionensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 424, pl. 35, figs. 16-20.
Warsaw L. S.: Near Huntsville, Alabama; Tateville, Pulaski County, Kentucky; Boonville, Missouri; Lee County, Virginia.

***Disygocrinus unionensis* var. *divalis* Miller.**

1892. *Batocrinus divalis*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 22, pl. 3, figs. 6, 7.
Keokuk Group: Boonville, Missouri.
1894. *Batocrinus divalis*. Miller, 18th Rep. Geol. Surv. Ind., p. 276, pl. 3, figs. 6, 7.
Keokuk Group: Boonville, Missouri.
1897. *Disygocrinus unionensis* var. *divalis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 425, pl. 35, figs. 21-24.
Warsaw L. S.: Boonville, Missouri; Huntsville, Alabama.

Disygocrinus whitei Wachsmuth and Springer.

1881. *Batocrinus Whitei*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 343. (Rev. Palæogr. II, p. 169.)

Keokuk Group: Bono, Canton, and Edwardsville, Indiana.

1897. *Disygocrinus Whitei*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 419, pl. 33, figs. 10a, b, 11.

Keokuk Group: Bono, Indiana; Keokuk, Iowa.

Warsaw L. S.: Spergen Hill, Indiana; Glasgow, Barren County, Kentucky; Boonville, Missouri.

Disygocrinus whitei var. didactylus Wachsmuth and Springer.

1897. *Disygocrinus Whitei* var. *didactylus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 420, pl. 35, figs. 12, 13.

Keokuk Group: Hamilton, Illinois.

(DOLABRA McCoy, 1844.)

Dolabra alpina. See *Schizodus alpina*.

(DOLICHOPTERUS Hall, 1859.)

Dolichopterus mansfieldi Hall. See *Eurypterus mansfieldi*.

DOMATOCERAS Hyatt, 1891.

Domatoceras highlandensis Worthen.

1875. *Nautilus (Discites) Highlandensis*. Worthen, Geol. Surv. Ill., vol. 6, p. 531, pl. 33, fig. 2.

Coal Measures: Lasalle, Illinois; near Highland, Madison County, Illinois.

1893. *Domatoceras? highlandense*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 440.

Domatoceras lasallensis Meek and Worthen.

1865. *Nautilus Lasallensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 261.

Upper Coal Measures: Lasalle, Illinois.

1873. *Nautilus Lasallensis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 610, pl. 31, fig. 1.

Upper Coal Measures: LaSalle, Illinois.

1888. *Nautilus lasallensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 242.

Lower Coal Measures: Des Moines, Iowa.

1893. *Domatoceras (Nautilus) lasallensis*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 441.

Domatoceras militarium Hyatt.

1893. *Domatoceras militarium*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 445, figs. 22-24.

Carboniferous: Military Crossing, Baylor County, Texas.

Domatoceras simplex Hyatt.

1893. *Domatoceras simplex*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 441, figs. 16-21.

Carboniferous: Ballinger and Military Crossing, Texas.

Domatoceras umbilicatum Hyatt.

1891. *Domatoceras umbilicatum*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 343, figs. 45-47.

Lower Coal Measures: Oswego, Kansas.

1893. *Domatoceras umbilicatum*. Hay, Trans. Kansas Acad. Sci., vol. 13, p. 42, fig. 12.

Lower Coal Measures: Oswego, Kansas.

(DONAX Linneus, 1758.)

(Donax rusticus Morton.)

1836. *Donax rusticus*. Morton, Am. Jour. Sci. (1), vol. 29, p. 151, pl. 3, fig. 15.
Coal Measures: Ohio Valley.

DOBYCRINUS Roemer, 1854.

Dorycrinus alabamensis Miller and Gurley.

1896. *Dorycrinus alabamensis*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 15, pl. 3, figs. 15-17.
Keokuk Group†: Chert Hill, Alabama.

Dorycrinus amœnus. See *Aorocrinus parvus*.*Dorycrinus canaliculatus*. See *Aorocrinus canaliculatus*.*Dorycrinus chouteauensis*. See *Actinocrinus chouteauensis*.*Dorycrinus confragosus*. See *Eretmocrinus leucosia*.**Dorycrinus cornigerus** Hall.

1858. *Actinocrinus cornigerus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 576, pl. 9, figs. 12a-c.
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus cornigerus*. Hall, Supp., vol. 1, pt. 2, Geol. Rep. Ia., pl. 3, fig. 4.
1860. *Actinocrinus divaricatus*. Hall, Supp., vol. 1, pt. 2, Geol. Rep. Ia., p. 11.
Burlington, L. S.: Burlington, Iowa.
1860. *Actinocrinus decornis*. Hall, Supp., vol. 1, pt. 2, Geol. Rep. Ia., p. 13.
Burlington L. S.: Burlington, Iowa.
1894. *Dorycrinus cornigerus*. Keyes, Mo. Geol. Surv., vol. 4, p. 172.
Upper Burlington L. S.: Ash Grove, Missouri.
1897. *Dorycrinus cornigerus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 458,
pl. 42, figs. 5, 6; pl. 43, fig. 5; pl. 44, figs. 6, 7.
Burlington L. S.: Burlington, Iowa.

Dorycrinus elegans. See *Aorocrinus elegans*.**Dorycrinus faberi** Miller and Gurley.

1896. *Dorycrinus faberi*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist.,
p. 19, pl. 1, figs. 8-10.
Burlington Group: Burlington, Iowa.

Dorycrinus gouldi Hall.

1858. *Actinocrinus gouldi*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 613, pl. 15, figs. 6a, b.
Keokuk L. S.: Near Warsaw, Illinois.
1894. *Dorycrinus gouldi*. Keyes, Mo. Geol. Surv., vol. 4, p. 173, pl. 23, fig. 1.
Keokuk L. S.: Curryville, Kahoka, Boonville, and Lagrange, Missouri;
Keokuk, Iowa.
1897. *Dorycrinus Gouldi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 456,
pl. 43, figs. 2, 3; pl. 44, figs. 4, 5.
Keokuk Group: Keokuk, Iowa; Barren County, Kentucky; Indian Creek,
Montgomery County, Indiana.

Dorycrinus greenei Miller and Gurley.

1894. *Dorycrinus greenei*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 48, pl. 5, figs. 1-3.
Knobstone Group: Button Mould Knobs, Bullitt County, Kentucky.

Dorycrinus immaturus. See *Aorocrinus immaturus*.*Dorycrinus inflatus*. See *Dorycrinus unicornis*.

***Dorycrinus intermedius* Meek and Worthen.**

1868. *Dorycrinus quinquelobus* var. *intermedius*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 346.
Upper Burlington Group: Burlington, Iowa.
1873. *Dorycrinus quinquelobus* var. *intermedius*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 385, pl. 10, fig. 4.
Burlington L. S.: Burlington, Iowa.
1894. *Dorycrinus intermedius*. Keyes, Mo. Geol. Surv., vol. 4, p. 173.
Upper Burlington L. S.: Quincy, Illinois; near Burlington, Iowa.
1897. *Dorycrinus intermedius*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 461, pl. 44, fig. 1.
Burlington and Keokuk transition bed.

Dorycrinus kelloggi. See *Aorocrinus spinosulus*.

Dorycrinus lineatus. See *Dorycrinus unicornis*.

***Dorycrinus mississippiensis* Roemer.**

1859. *Dorycrinus mississippiensis*. Roemer, Archiv. für Naturgeschichte, Jahrg. 19, Bd. 1, pp. 207-220, pl. 10.
Kohlenkalk: Warsaw, Illinois.
1860. *Actinocrinus (Dorycrinus) mississippiensis* var. *spiniger*. Hall, Supp. vol. 1, pt. 2. Geol. Rep. Ia., p. 53.
Keokuk L. S.: Warsaw, Illinois.
1890. *Dorycrinus mississippiensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 100, pl. 12, fig. 4.
Keokuk L. S.: Hamilton, Illinois.
1894. *Dorycrinus mississippiensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 174.
Keokuk L. S.: Kahoka, Missouri; Keokuk, Iowa; Warsaw, Illinois.
1897. *Dorycrinus mississippiensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 455, pl. 43, fig. 1; pl. 44, figs. 2, 3.
Keokuk Group: Keokuk, Iowa; Warsaw, Hamilton, and Nauvoo, Illinois; White's Creek, Tennessee; Indiana and Kentucky.

***Dorycrinus missouriensis* Shumard.**

1855. *Actinocrinus Missouriensis*. Geol. Rep. Mo., p. 190, pl. A, figs. 4a-c.
Encrinital L. S.: North River, near Palmyra, Marion County, Missouri.
1861. *Actinocrinus desideratus*. Hall, Desc. New Spec. Crin., p. 2.
Burlington L. S.
1861. *Actinocrinus desideratus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 373.
Burlington L. S.: Burlington, Iowa.
1894. *Dorycrinus missouriensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 171.
Upper Burlington L. S.: Ash Grove, Palmyra, Sedalia, Hannibal, and Louisiana, Missouri.
1897. *Dorycrinus missouriensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 463, pl. 43, fig. 6; pl. 45, figs. 13a-c, 14.
Upper Burlington L. S.: Palmyra, Missouri; Burlington, Iowa.

Dorycrinus parvibasis. See *Aorocrinus parvibasis*.

Dorycrinus parvus. See *Aorocrinus parvus*.

Dorycrinus pendens. See *Dorycrinus unicornis*.

***Dorycrinus quinquelobus* Hall.**

1860. *Actinocrinus quinquelobus*. Hall, Supp. vol. 1. pt. 2, Geol. Rep. Ia., p. 15.
Burlington L. S.: Burlington, Iowa.
1872. *Actinocrinus quinquelobus*. Hall, Photo. Plates of Crinoids, pl. 3, figs. 18-20.
1897. *Dorycrinus quinquelobus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 460, pl. 42, figs. 7-9.
Upper Burlington L. S.: Burlington and Pleasant Grove, Iowa.

Dorycrinus quinquelobus var. *intermedius*. See *Dorycrinus intermedius*.

Dorycrinus radiatus. See *Aorocrinus radiatus*.

***Dorycrinus roemeri* Meek and Worthen.**

1868. *Dorycrinus Roemeri*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 346.
Upper Burlington Group: Burlington, Iowa.

1873. *Dorycrinus Roemeri*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 383, pl. 10,
fig. 3.

Burlington L. S.: Burlington, Iowa.

1897. *Dorycrinus Roemeri*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 464,
pl. 45, figs. 15a, b.

Upper Burlington L. S.: Burlington and Pleasant Grove, Iowa.

***Dorycrinus sampsoni* Miller and Gurley.**

1896. *Dorycrinus sampsoni*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat.
Hist., p. 17, pl. 3, figs. 20-22.

Burlington Group: Sedalia, Missouri.

Dorycrinus subaculeatus. See *Aorocrinus subaculeatus*.

***Dorycrinus suboviformis* Miller and Gurley.**

1897. *Dorycrinus suboviformis*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat.
Hist., p. 30, pl. 2, figs. 7-9.

Burlington Group: Near Sharon, Missouri.

***Dorycrinus subturbinatus* Meek and Worthen.**

1860. *Actinocrinus (Amphorocrinus) subturbinatus*. Meek and Worthen, Proc.
Acad. Nat. Sci. Phil., p. 388.

Burlington L. S.: Burlington, Iowa.

1866. *Amphorocrinus subturbinatus*. Meek and Worthen, Geol. Surv. Ill., vol. 2,
p. 212, pl. 15, figs. 4a, b.

Burlington L. S.: Burlington, Iowa.

1897. *Dorycrinus subturbinatus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 466, pl. 42, figs. 10a, b.

Upper Burlington L. S.: Burlington, Iowa.

Dorycrinus tricornis. See *Dorycrinus unicornis*.

***Dorycrinus unicornis* Owen and Shumard.**

1850. *Actinocrinus unicornis*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil.,
(2), vol. 2, p. 67, pl. 7, fig. 12.

Subcarboniferous L. S.: Burlington and Augusta, Iowa.

1852. *Actinocrinus unicornis*. Owen and Shumard, Geol. Rep. Wis., Ia., and Minn.,
p. 593, tab. 5A, figs. 12a, b.

Subcarboniferous L. S.: Burlington and Augusta, Iowa.

1858. *Actinocrinus unicornis*. Hall, Geol. Ia., vol. 1, pt. 2, p. 568, pl. 10, figs. 5a-c.
Burlington L. S.: Burlington, Iowa.

1858. *Actinocrinus tricornis*. Hall, Geol. Ia., vol. 1, pt. 2, p. 569.
Burlington L. S.: Burlington, Iowa.

1860. *Actinocrinus pendens*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 31.
Burlington L. S.: Burlington, Iowa.

1860. *Actinocrinus tricornis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 2, fig. 7.

1873. *Dorycrinus unicornis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 383,
pl. 6, fig. 2.

Burlington L. S.: Burlington, Iowa.

1881. *Dorycrinus lineatus*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 310, pl. 7,
figs. 3, 3a.

Subcarboniferous: Lake Valley Mining District, New Mexico.

***Dorycrinus intermedius* Meek and Worthen.**

1868. *Dorycrinus quinquelobus* var. *intermedius*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 346.
Upper Burlington Group: Burlington, Iowa.
1873. *Dorycrinus quinquelobus* var. *intermedius*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 385, pl. 10, fig. 4.
Burlington L. S.: Burlington, Iowa.
1894. *Dorycrinus intermedius*. Keyes, Mo. Geol. Surv., vol. 4, p. 173.
Upper Burlington L. S.: Quincy, Illinois; near Burlington, Iowa.
1897. *Dorycrinus intermedius*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 461, pl. 44, fig. 1.
Burlington and Keokuk transition bed.

Dorycrinus kelloggi. See *Aorocrinus spinosulus*.

Dorycrinus lineatus: See *Dorycrinus unicornis*.

***Dorycrinus mississippiensis* Roemer.**

1859. *Dorycrinus mississippiensis*. Roemer, Archiv. für Naturgeschichte, Jahrg. 19, Bd. 1, pp. 207-220, pl. 10.
Kohlenkalk: Warsaw, Illinois.
1860. *Actinocrinus (Dorycrinus) mississippiensis* var. *spiniger*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 53.
Keokuk L. S.: Warsaw, Illinois.
1890. *Dorycrinus mississippiensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 100, pl. 12, fig. 4.
Keokuk L. S.: Hamilton, Illinois.
1894. *Dorycrinus mississippiensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 174.
Keokuk L. S.: Kahoka, Missouri; Keokuk, Iowa; Warsaw, Illinois.
1897. *Dorycrinus mississippiensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 455, pl. 43, fig. 1; pl. 44, figs. 2, 3.
Keokuk Group: Keokuk, Iowa; Warsaw, Hamilton, and Nauvoo, Illinois;
White's Creek, Tennessee; Indiana and Kentucky.

***Dorycrinus missouriensis* Shumard.**

1855. *Actinocrinus Missouriensis*. Geol. Rep. Mo., p. 190, pl. A, figs. 4a-c.
Encrinital L. S.: North River, near Palmyra, Marion County, Missouri.
1861. *Actinocrinus desideratus*. Hall, Desc. New Spec. Crin., p. 2.
Burlington L. S.
1861. *Actinocrinus desideratus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 373.
Burlington L. S.: Burlington, Iowa.
1894. *Dorycrinus missouriensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 171.
Upper Burlington L. S.: Ash Grove, Palmyra, Sedalia, Hannibal, and Louisiana, Missouri.
1897. *Dorycrinus missouriensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 463, pl. 43, fig. 6; pl. 45, figs. 13a-c, 14.
Upper Burlington L. S.: Palmyra, Missouri; Burlington, Iowa.

Dorycrinus parvibasis. See *Aorocrinus parvibasis*.

Dorycrinus parvus. See *Aorocrinus parvus*.

Dorycrinus pendens. See *Dorycrinus unicornis*.

***Dorycrinus quinquelobus* Hall.**

1860. *Actinocrinus quinquelobus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 15.
Burlington L. S.: Burlington, Iowa.
1872. *Actinocrinus quinquelobus*. Hall, Photo. Plates of Crinoids, pl. 3, figs. 18-20.
1897. *Dorycrinus quinquelobus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 460, pl. 42, figs. 7-9.
Upper Burlington L. S.: Burlington and Pleasant Grove, Iowa.

Dorycrinus quinquelobus var. *intermedius*. See *Dorycrinus intermedius*.

Dorycrinus radiatus. See *Aorocrinus radiatus*.

***Dorycrinus roemeri* Meek and Worthen.**

1868. *Dorycrinus Roemeri*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 346.
Upper Burlington Group: Burlington, Iowa.

1873. *Dorycrinus Roemeri*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 383, pl. 10,
fig. 3.

Burlington L. S.: Burlington, Iowa.

1897. *Dorycrinus Roemeri*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 464,
pl. 45, figs. 15a, b.

Upper Burlington L. S.: Burlington and Pleasant Grove, Iowa.

***Dorycrinus sampsoni* Miller and Gurley.**

1896. *Dorycrinus sampsoni*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat.
Hist., p. 17, pl. 3, figs. 20-22.

Burlington Group: Sedalia, Missouri.

Dorycrinus subaculeatus. See *Aorocrinus subaculeatus*.

***Dorycrinus suboviformis* Miller and Gurley.**

1897. *Dorycrinus suboviformis*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat.
Hist., p. 30, pl. 2, figs. 7-9.

Burlington Group: Near Sharon, Missouri.

***Dorycrinus subturbinatus* Meek and Worthen.**

1860. *Actinocrinus (Amphorocrinus) subturbinatus*. Meek and Worthen, Proc.
Acad. Nat. Sci. Phil., p. 388.

Burlington L. S.: Burlington, Iowa.

1866. *Amphorocrinus subturbinatus*. Meek and Worthen, Geol. Surv. Ill., vol. 2,
p. 212, pl. 15, figs. 4a, b.

Burlington L. S.: Burlington, Iowa.

1897. *Dorycrinus subturbinatus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 466, pl. 42, figs. 10a, b.

Upper Burlington L. S.: Burlington, Iowa.

Dorycrinus tricornis. See *Dorycrinus unicornis*.

***Dorycrinus unicornis* Owen and Shumard.**

1850. *Actinocrinus unicornis*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil.,
(2), vol. 2, p. 67, pl. 7, fig. 12.

Subcarboniferous L. S.: Burlington and Augusta, Iowa.

1852. *Actinocrinus unicornis*. Owen and Shumard, Geol. Rep. Wis., Ia., and Minn.,
p. 593, tab. 5A, figs. 12a, b.

Subcarboniferous L. S.: Burlington and Augusta, Iowa.

1858. *Actinocrinus unicornis*. Hall, Geol. Ia., vol. 1, pt. 2, p. 568, pl. 10, figs. 5a-c.
Burlington L. S.: Burlington, Iowa.

1858. *Actinocrinus tricornis*. Hall, Geol. Ia., vol. 1, pt. 2, p. 569.
Burlington L. S.: Burlington, Iowa.

1860. *Actinocrinus pendens*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 31.
Burlington L. S.: Burlington, Iowa.

1860. *Actinocrinus tricornis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 2, fig. 7.

1873. *Dorycrinus unicornis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 383,
pl. 6, fig. 2.

Burlington L. S.: Burlington, Iowa.

1881. *Dorycrinus lineatus*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 310, pl. 7,
figs. 3, 3a.

Subcarboniferous: Lake Valley Mining District, New Mexico.

Dorycrinus unicornis Owen and Shumard—Continued.

1893. *Dorycrinus pendens*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 18, pl. 2, fig. 9.
Burlington L. S.: Burlington, Iowa.
1893. *Dorycrinus tricornis*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 19, pl. 2, fig. 6-8.
Burlington L. S.: Burlington, Iowa.
1891. *Dorycrinus inflatus*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 114, pl. 3, fig. 4.
Lower Burlington L. S.: Louisiana, Missouri.
1894. *Dorycrinus unicornis*. Keyes, Mo. Geol. Surv., vol. 4, p. 169, pl. 23, fig. 2.
Lower Burlington L. S.: Sedalia and Hannibal, Missouri.
1897. *Dorycrinus unicornis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 468, pl. 45, figs. 8a-e, 9, 10.
Lower Burlington L. S.: Burlington, Iowa; Sedalia, Missouri; Lake Valley, New Mexico.

Dorycrinus unispinus Hall.

1861. *Actinocrinus unispinus*. Hall, Desc. New Spec. Crin., p. 2.
Burlington L. S.
1861. *Actinocrinus unispina*. Hall, Jour. Bos. Soc. Nat. Hist., vol. 7, p. 270.
Burlington L. S.: Burlington, Iowa.
1858. *Actinocrinus trinodus*. Hall, Geol. Ia., vol. 1, pt. 2, p. 575. (An abnormal specimen.)
Burlington L. S.: Burlington, Iowa.
1872. *Actinocrinus trinodus*. Hall, Photo. Plates of Crinoids, pl. 3, fig. 7.
1897. *Dorycrinus unispinus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 467, pl. 45, fig. 12.
Lower Burlington L. S.: Burlington, Iowa.

ECHINODISCUS Worthen and Miller, 1883.**Echinodiscus kaskaskiensis** Hall.

1858. *Agelacrinus kaskaskiensis*. Hall, Geol. Ia., vol. 1, pt. 2, p. 696, pl. 25, fig. 18.
Kaskaskia L. S.: Kaskaskia, Illinois.
1894. *Echinodiscus kaskaskiensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 133, pl. 18, fig. 3.
Kaskaskia L. S.: Ste. Mary's, Missouri; Kaskaskia, Illinois.

Echinodiscus optatus Worthen and Miller.

1883. *Echinodiscus optatus*. Worthen and Miller, Geol. Surv. Ill., vol. 7, p. 336, pl. 31, fig. 9.
Chester L. S.: Monroe and Pope counties, Illinois.

Echinodiscus sampsoni Miller.

1891. *Echinodiscus sampsoni*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 76, pl. 12, fig. 16.
Keokuk Group: Boonville, Missouri.
1892. *Echinodiscus sampsoni*. Miller, 17th Rep. Geol. Surv. Ind., p. 686, pl. 12, fig. 16.
Keokuk Group: Boonville, Missouri.
1894. *Echinodiscus sampsoni*. Keyes, Mo. Geol. Surv., vol. 4, p. 133.
Keokuk L. S.: Boonville, Missouri.

ECTENODICTYA Hall, 1884.**Ectenodictya burlingtonensis** Hall.

1884. *Ectenodictya burlingtonensis*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 476.
Kinderhook Group (Yellow S. S.): Burlington, Iowa.

Ectenodictya excentrica Hall.

1884. *Ectenodictya excentrica*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 476, pl. 20, fig. 1.
Keokuk Group: Crawfordsville, Indiana.

Ectenodictya expansa Hall.

1884. *Ectenodictya expansa*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 475, pl. 20, fig. 10.
Waverly S. S.: Warren, Pennsylvania.

Ectenodictya implexa Hall.

1884. *Ectenodictya implexa*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 475, pl. 19, fig. 1.
Waverly Group: Warren and Oil City, Pennsylvania.

EDAPHOCERAS Hyatt, 1883.**Edaphoceras notensis** Meek and Worthen.

1865. *Nautilus (Temnocheilus) Niotensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 260.
Keokuk Group: Niota and Warsaw, Illinois.
1873. *Nautilus (Temnocheilus) Niotensis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 523, pl. 19, fig. 3.
Keokuk Group: Niota and Warsaw, Illinois.
1883. *Edaphoceras notensis*. Hyatt, Proc. Bost. Soc. Nat. Hist., vol. 22, p. 288.

EDMONDIA De Koninck, 1844.**Edmondia æquimarginalis** Winchell.

1862. *Cardinia æquimarginalis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 413.
Marshall Group: Marshall, Michigan.
1863. *Edmondia æquimarginalis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 13.
Yellow S. S.: Burlington, Iowa.
1865. *Edmondia æquimarginalis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 127.
Chemung Group: New York.

Edmondia albersi Miller and Gurley.

1896. *Edmondia albersi*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 8, pl. 1, figs. 9-11.
Chouteau L. S.: Sedalia, Missouri.

Edmondia anomala Dawson.

1868. *Edmondia anomala*. Dawson, Acad. Geol., p. 303, fig. 105.
Carboniferous L. S.: Windsor, Nova Scotia.

Edmondia aspinwallensis Meek.

1871. *Edmondia aspinwallensis*. Meek, Prelim. Rep. U. S. Geol. Surv. Wyo., p. 299.
Upper Coal Measures: Aspenwall, Nebraska.
1872. *Edmondia Aspinwallensis*. Meek, U. S. Geol. Surv. Nebr., p. 216, pl. 4, figs. 2a-c.
Upper Coal Measures: Aspinwall, Nebraska.
Lower Coal Measures: West Virginia.
Coal Measures: Illinois.
1876. *Edmondia Aspenwallensis*. White, Powell's Rep. Geol. Uinta Mts., p. 91.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1884. *Edmondia Aspinwallensis*. White, 13th Rep. Geol. Surv. Ind., p. 148, pl. 31, figs. 4, 5.
Coal Measures: Indiana (†).

Edmondia aspinwallensis Meek—Continued.

1887. *Edmondia* (cf. *aspinwallensis*). Herrick, Bull. Den. Univ., vol. 2, p. 38, pl. 3, fig. 17; pl. 4, fig. 4.
Coal Measures: Flint-Ridge, Ohio.
1894. *Edmondia aspinwallensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 126, pl. 47, figs. 1a, b.
Upper Coal Measures: Kansas City, Missouri.

Edmondia bicarinata Winchell.

1863. *Edmondia* (?) *bicarinata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 13.
Yellow S. S.: Burlington, Iowa.
1865. *Edmondia*? *bicarinata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 127.

Edmondia binumbonata Winchell.

1862. *Edmondia binumbonata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 414.
Marshall Group: Marshall, Michigan.

Edmondia burlingtonensis White and Whitfield.

1862. *Edmondia burlingtonensis*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 301.
Chemung Group: Burlington, Iowa.
1865. *Edmondia burlingtonensis*? Winchell, Proc. Acad. Nat. Sci. Phil., p. 127.
Marshall Group: One mile east of Orange Center, Cuyahoga County, Ohio.
1885. *Edmondia burlingtonensis*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 390, pl. 64, fig. 22; pl. 95, figs. 13, 14.
Yellow S. S.: Burlington, Iowa.
1888. *Edmondia burlingtonensis*. Herrick, Bull. Den. Univ., vol. 3, p. 77, pl. 4, fig. 18; pl. 9, figs. 17, 27.
Waverly Group: Licking County, Ohio.
1894. *Edmondia burlingtonensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 126, pl. 47, fig. 3.
Lower Burlington, L. S.: Louisiana, Missouri.

Edmondia calhouni. See Pleurophorus calhouni.**Edmondia circularis Walcott.**

1884. *Edmondia*? *circularis*. Walcott, Pal. Eureka Dist., p. 246, pl. 22, fig. 9.
Lower Carboniferous: Eureka District, Nevada.

Edmondia concentrica. See Astartella concentrica.**Edmondia depressa Hall.**

- *1870. *Edmondia depressa*. Hall, Prelim. Not. Lamell. 2, p. 91.
Waverly S. S.: Licking County, Ohio.
1885. *Edmondia depressa*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 391, pl. 64, fig. 32.
Waverly S. S.: Licking County, Ohio.
1888. *Edmondia depressa*. Herrick, Bull. Den. Univ., vol. 3, p. 76, pl. 8, fig. 5.
Waverly Group: Licking County, Ohio.

Edmondia ellipsis Hall.

1885. *Edmondia ellipsis*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 392, pl. 64, fig. 25.
Burlington S. S.: Burlington, Iowa.

Edmondia elliptica Winchell.

1863. *Edmondia* (?) *elliptica*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 13.
Yellow S. S.: Burlington, Iowa.

Edmondia gibbosa Swallow.

1858. *Edmondia gibbosa*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 189.
Lower Permian: Valley of Cottonwood, Kansas.

Edmondia glabra Meek.

1872. *Edmondia*? *glabra*. Meek, U. S. Geol. Surv. Nebr., p. 214, pl. 10, figs. 7a, b.
Upper Coal Measures: Nebraska City, Nebraska.

Edmondia glabra Meek—Continued.

1894. *Edmondia glabra*. Keyes, Mo. Geol. Surv., vol. 5, p. 127.
Upper Coal Measures: Kansas City, Missouri.

Edmondia hartti Dawson.

1868. *Edmondia Harttii*. Dawson, Acad. Geol., p. 303, fig. 104.
Carboniferous L. S.: Windsor, Nova Scotia.

Edmondia hawni Swallow.

1858. *Edmondia Hawni*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 209.
Coal Measures: Near the Sac and Fox Agency, Kansas.

Edmondia illinoisensis Worthen.

1884. *Edmondia illinoisensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 18.
Upper Keokuk L. S.: Warsaw, Illinois.
1890. *Edmondia illinoisensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 122, pl. 18, figs. 7, 7a.
Keokuk L. S.: Warsaw, Illinois.

Edmondia marionensis Swallow.

1860. *Edmondia Marionensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 654.
Chouteau L. S.: Cooper County, Missouri.

Edmondia medon Walcott.

1884. *Edmondia Medon*. Walcott, Pal. Eureka Dist., p. 245, pl. 23, fig. 6.
Lower Carboniferous: Eureka District, Nevada.

Edmondia mortonensis Geinitz.

1866. *Astarte Mortonensis*. Geinitz, Carb. und Dyas in Nebr., p. 17, tab. 1, fig. 26.
Nebraska City, Nebraska.

Edmondia nebrascensis Geinitz.

1866. *Astarte Nebrascensis*. Geinitz, Carb. und Dyas in Nebr., p. 16, tab. 1, fig. 25.
Nebraska City, Nebraska.
1872. *Edmondia ? Nebrascensis*. Meek, U. S. Geol. Surv. Nebr., p. 214, pl. 10, figs. 8a, b.
Upper Coal Measures: Nebraska City, Nebraska.
1897. *Edmondia nebrascensis*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 38.
Upper Coal Measures: Poteau Mountain, Indian Territory.

Edmondia nitida Winchell.

1863. *Edmondia nitida*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 12.
Yellow S. S.: Burlington, Iowa.

Edmondia nuptialis Winchell.

1863. *Edmondia nuptialis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 12.
Yellow S. S.: Burlington, Iowa.
1894. *Edmondia nuptialis*. Keyes, Mo. Geol. Surv., vol. 5, p. 126, pl. 47, fig. 2.
Lower Burlington L. S.: Louisiana, Missouri.

Edmondia otoensis Swallow.

1858. *Edmondia Otoensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 189.
Lower Permian: Valley of Cottonwood, Kansas.

Edmondia ovata Meek and Worthen.

1873. *Edmondia ovata*. Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 26, fig. 13.
Coal Measures.
1874. *Edmondia ovata*. Meek, Am. Jour. Sci. (3), vol. 7, p. 580.

Edmondia peroblonga Meek and Worthen.

1865. *Edmondia ? peroblonga*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 249.
Upper Coal Measures: Lasalle, Illinois.

Edmondia peroblunga Meek and Worthen—Continued.

1873. *Edmondia ? peroblunga*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 583, pl. 27, fig. 4.

Coal Measures: Lasalle, Illinois.

Edmondia radiata. See *Clinopistha radiata*.**Edmondia reflexa** Meek.

1872. *Edmondia reflexa*. Meek, U. S. Geol. Surv. Nebr., p. 213, pl. 10, figs. 6a, b; pl. 4, fig. 7.

Upper Coal Measures: Nebraska City, Nebraska.

1887. *Edmondia (?) reflexa*. Herrick, Bull. Den. Univ., vol. 2, p. 145, pl. 14, fig. 21.

Coal Measures: Flint Ridge, Ohio.

Edmondia semiorbiculata Swallow.

1858. *Edmondia semiorbiculata*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 190.

Lower Permian: Near Council Grove, Kansas.

Edmondia strigillata Winchell.

1863. *Edmondia strigillata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 12.

Yellow S. S.: Burlington, Iowa.

Edmondia suborbiculata Shumard.

1859. *Edmondia suborbiculata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 398.

White Permian L. S.: Guadalupe Mountains.

Edmondia subplana Hall.

1856. *Cypricardia subplana*. Hall, Trans. Albany Inst., vol. 4, p. 19.

St. Louis L. S.: Spergen Hill, Indiana.

1882. *Edmondia subplana*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 66, pl. 7, fig. 38.

St. Louis Group: Spergen Hill and Bloomington, Indiana.

1883. *Edmondia (?) subplana*. Hall, 12th Rep. Geol. Surv. Ind., p. 342, pl. 30, fig. 38.

St. Louis Group: Spergen Hill and Lanesville, Indiana.

Edmondia subtruncata Meek.

1872. *Edmondia subtruncata*. Meek, U. S. Geol. Surv. Nebr., p. 215, pl. 2, fig. 7.

Upper Coal Measures: Rock Bluff, Nebraska; Atchison, Kansas.

Lower Coal Measures: Illinois.

1894. *Edmondia subtruncata*. Keyes, Mo. Geol. Surv., vol. 5, p. 127.

Upper Coal Measures: Kansas City, Missouri.

Edmondia sulcifera Herrick.

1888. *Edmondia sulcifera*. Herrick, Bull. Den. Univ., vol. 4, p. 30, pl. 5, figs. 1, 2.

Waverly Group: Moot's Run, Licking County, Ohio.

1889. *Edmondia sulcifera*. Herrick, Am. Geol., vol. 3, pl. 3, figs. 1, 2.

1895. *Edmondia sulcifera*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, figs. 18, 20, 24.

Cuyahoga Shale: Cuyahoga and Licking counties, Ohio.

Edmondia tapesiformis Meek.

1875. *Edmondia ? tapesiformis*. Meek, Pal. Ohio, vol. 2, p. 304, pl. 13, fig. 6.

Waverly Group: Richfield, Ohio.

Edmondia unioniformis Phillips.

1836. *Isocardia unioniformis*. Phillips, Geol. Yorkshire, vol. 2, p. 209, pl. 5, fig. 18.

1866. *Edmondia unioniformis ?* Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 346, pl. 27, figs. 6, 6b.

Upper Coal Measures: North branch of Saline Creek, Gallatin County, Illinois.

1897. *Edmondia unioniformis*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 38.

Lower Coal Measures: Conway County, Arkansas.

Edmondia varsoviensis Worthen.

1884. *Edmondia varsoviensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 18.
Upper Keokuk L. S.: Warsaw, Illinois.
1890. *Edmondia varsoviensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 121, pl. 20,
figs. 11, 11a.
Keokuk L. S.: Warsaw, Illinois.

Edmondia (species undetermined).

1876. *Edmondia* — ? —. White, Powell's Rep. Geol. Uinta Mts., p. 92.
Upper Aubrey Group: Confluence of Grand and Green rivers, Utah.
1888. *Edmondia* ? Herrick, Bull. Den. Univ., vol. 3, pl. 4, fig. 5.
Waverly Group: Licking County, Ohio.
1888. *Edmondia* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 3.
Waverly Group: Cuyahoga Falls, Ohio.

EILETICUS Scudder, 1882.**Eileticus æqualis** Scudder.

1890. *Eileticus æqualis*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 421, pl. 38,
figs. 6-9.
Carboniferous: Mazon Creek, Illinois.
1890. *Eileticus æqualis*. Scudder, Foss. Insc. N. A., vol. 1, p. 397, pl. 30, figs. 6-9.
Carboniferous: Mazon Creek, Illinois.

Eileticus anthracinus Scudder.

1882. *Eileticus anthracinus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 179,
pl. 13, figs. 5, 6.
Carboniferous: Mazon Creek, Illinois.
1890. *Eileticus anthracinus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 420,
pl. 38, fig. 5.
Carboniferous: Mazon Creek, Illinois.
1890. *Eileticus anthracinus*. Scudder, Foss. Insc. N. A., vol. 1, pp. 231, 396, pl. 10,
figs. 5, 6; pl. 30, fig. 5.
Carboniferous: Mazon Creek, Illinois.

(ELÆACRINUS Roemer, 1852.)

Elæacrinus kirkwoodensis. See *Cryptoblastus kirkwoodensis*.

ELYMELLA Hall, 1885.**Elymella missouriensis** Miller and Gurley.

1896. *Elymella missouriensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus.
Nat. Hist., p. 15, pl. 2, figs. 11, 12.
Chouteau L. S.: Near Sedalia, Missouri.

Elymella patula Hall.

1885. *Elymella patula*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 505, pl. 40, fig. 11.
Waverly Group: Medina, Ohio.

ENDOLOBUS Meek and Worthen, 1865.**Endolobus avonensis** Dawson.

1868. *Nautilus Aronensis*. Dawson, Acad. Geol., p. 311, figs. 124a, b.
Carboniferous L. S.: Windsor and Minudie, Nova Scotia.
1895. *Endolobus avonensis*. Hyatt, Proc. Am. Phil. Soc., vol. 32, p. 536, pl. 8,
figs. 36-39.
Joggins, Nova Scotia.

Endolobus gibbosus Hyatt. See *Stearoceras gibbosum*.

Endolobus missouriensis Swallow.

1858. *Nautilus Missouriensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 198.
Near Base of Coal Measures: Boone County, Missouri.
1884. *Nautilus Missouriensis*. White, 13th Rep. Geol. Surv. Ind., p. 166, pl. 35,
figs. 1, 2.
Coal Measures: Silverwood, Fountain County, Indiana.
1893. *Nautilus missouriensis*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 453.
1894. *Nautilus missouriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 224, pl. 56, fig. 3.
Lower Coal Measures: Boone County, Missouri.
1897. *Endolobus (Nautilus) missouriensis*. Smith, Proc. Am. Phil. Soc., vol. 35,
p. 42, pl. 21, figs. 1-3.
Lower Coal Measures: Conway County, Arkansas.

Endolobus spectabilis Meek and Worthen.

1860. *Nautilus spectabilis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 469.
Chester L. S.: Gravel Creek, Randolph County, Illinois.
1865. *Nautilus (Endolobus) peramplus*. Meek and Worthen, Proc. Acad. Nat. Sci.
Phil., p. 259.
Chester Group: Randolph County, Illinois.
1866. *Nautilus (Endolobus) spectabilis*. Meek and Worthen, Geol. Surv. Ill., vol. 2,
p. 308, pl. 25, figs. 1a, b.
Chester Group: Randolph County, Illinois.
1891. *Nautilus (Temnocheilus) spectabilis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5,
p. 594, pl. 14, fig. 22.
Maxville L. S.: Near Rushville, Ohio.
1894. *Nautilus spectabilis*. Keyes, Mo. Geol. Surv., vol. 5, p. 222.
Kaekaskia L. S.: St. Louis County, Missouri.
1895. *Nautilus (Temnocheilus) spectabilis*. Whitfield, Geol. Surv. Ohio, vol. 7,
p. 480, pl. 10, fig. 22.
Maxville L. S.: Near Rushville, Ohio.

ENDOTHYRA Phillips, 1845.

Endothyra baileyi Hall.

1856. *Rotalia Baileyi*. Hall, Trans. Albany Inst., vol. 4, p. 34.
St. Louis L. S.
1876. *Endothyra Bowmani*. Brady, Monog. Carb. and Perm. Form., p. 92, pl. 5,
figs. 1-4.
Subcarboniferous: Indiana.
1882. *Endothyra Baleyi*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 42, pl. 9,
figs. 34-36.
St. Louis Group: Spergen Hill and Bloomington, Indiana; Alton, Illinois.
1883. *Endothyra baleyi*. Hall, 12th Rep. Geol. Surv. Ind., p. 321, pl. 32, figs. 34-36.
St. Louis Group: Alton, Illinois; Spergen Hill, Bloomington, and Lanesville, Indiana.

Endothyra ornata Brady.

1876. *Endothyra ornata*. Brady, Monog. Carb. and Perm. Form., p. 99, pl. 6,
figs. 1-4.
Lower and Upper Carboniferous: England, Scotland, and Ireland.
1880. *Endothyra ornata*. White, Proc. U. S. Nat. Mus., vol. 2, p. 291.
Carboniferous: Teton Mountains, south of Yellowstone National Park.

ENTELETES Fischer, 1830.

Enteleles hemiplicata Hall.

1852. *Spirifer hemiplicata*. Hall, Stansb. Exped. to Gt. Salt Lake, p. 409, pl. 4, figs. 3a, b.
Carboniferous: Missouri River, near Weston.
1859. *Spirifer hemiplicata*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 28.
Upper Coal Measures: Near Leavenworth, Kansas.
1866. *Rhynchonella angulata*. Geinitz, Carb. und Dyas. in Nebr., p. 37, tab. 3, figs. 1-4.
Bennett's Mill and Nebraska City, Nebraska.
1866. *Syntrelasma hemiplicata*. Meek and Worthen, Geol. Surv. Ill., vol. 2, pp. 323, 324, fig. 37.
Upper Coal Measures: 12 miles north of Vandalia, Illinois; Eastern Kansas, Northern Missouri, Western Iowa.
1872. *Syntrelasma hemiplicata*. Meek, U. S. Geol. Surv. Nebr., p. 177, pl. 6, figs. 1a, b; pl. 8, figs. 12a, b.
Upper Coal Measures: Nebraska City, Wyoming, and Bennett's Mill, Nebraska.
Coal Measures: Illinois, Iowa, Missouri, Kansas.
1873. *Syntrelasma hemiplicata*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 571, pl. 26, fig. 20.
Upper Coal Measures: 12 miles north of Vandalia, Illinois.
1882. *Camerophoria giffordi*. Worthen, Bull. No. 1., Ill. State Mus. Nat. Hist., p. 39.
Middle Coal Measures: Near Alta, Peoria County, Illinois.
1883. *Camerophoria Giffordi*. Worthen, Geol. Surv. Ill., vol. 7, p. 318, figs. a-c.
Middle Coal Measures: Near Alta, Peoria County, Illinois.
1884. *Syntrelasma hemiplicata*. White, 13th Rep. Geol. Surv. Ind., p. 131, pl. 26, figs. 15-18.
Coal Measures: Indiana.
1892. *Enteleles hemiplicata*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 12, figs. 18-21.
Coal Measures: Winterset, Iowa; Kansas City, Missouri.
1892. *Enteleles hemiplicata*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 7A, figs. 44-52.
Upper Coal Measures: Kansas City, Missouri; Winterset, Iowa.
1894. *Syntrelasma hemiplicata*. Keyes, Mo. Geol. Surv., vol. 5, p. 76, pl. 39, figs. 8a-d.
Upper Coal Measures: Kansas City, Missouri.

(ENTOLIUM Meek, 1865.)

- Entolium attenuatum*. See *Pernopecten attenuatus*.
- Entolium aviculatum*. See *Pernopecten aviculatus*.
- Entolium circulus*. See *Pernopecten circulus*.
- Entolium cooperensis*. See *Pernopecten cooperensis*.
- Entolium shumardianum*. See *Pernopecten shumardianus*.

EOCIDARIS Desor, 1858.

Eocidaris blairi Miller.

1891. *Eocidaris blairi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 73, pl. 12, figs 1, 2.
Keokuk Group: Boonville, Missouri.
1892. *Eocidaris blairi*: Miller, 17th Rep. Geol. Surv. Ind., p. 683, pl. 12, figs. 1, 2.
Keokuk Group: Boonville, Missouri.

***Eocidaris hallianus* Geinitz.**

1866. *Eocidaris Hallianus*. Geinitz, Carb. und Dyas in Nebr., p. 61, tab. 5, figs. 1a, b, 2a, b.

Nebraska City, Nebraska.

1872. *Eocidaris Hallianus*. Meek, U. S. Geol. Surv. Nebr., p. 152, pl. 7, figs. 9a-d.

Upper Coal Measures: Nebraska City, Nebraska.

1894. *Archæocidaris hallianus*. Keyes, Mo. Geol. Surv., vol. 4, p. 129.

Upper Coal Measures: Kansas City, Missouri.

1895. *Archæocidaris hallianus*. Keyes, Proc. Ia. Acad. Sci., vol. 2, p. 190.

Upper Coal Measures: Kansas City, Missouri; Nebraska City, Nebraska.

Eocidaris squamosus. See *Lepidocidaris squamosus*.

EOSCORPIUS Meek and Worthen, 1868.***Eoscorpius carbonarius* Meek and Worthen.**

1868. *Scorpio carbonarius*. Meek and Worthen, Am. Jour. Sci. (2), vol. 46, p. 24.

Coal Measures: Mazon Creek, Grundy County, Illinois.

1868. *Eoscorpius carbonarius*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 560, fig.

Coal Measures: Mazon Creek, Grundy County, Illinois.

EOTROCHUS Whitfield, 1882.***Eotrochus concavus* Hall.**

1856. *Pleurotomaria concava*. Hall, Trans. Albany Inst., vol. 4, p. 24.

St. Louis L. S.: Spergen Hill and Bloomington, Indiana.

1882. *Eotrochus concavus*. Whitfield, Bull. Am. Mus. Nat. Hist., p. 78, pl. 9, figs. 21-23.

St. Louis Group: Spergen Hill, Indiana; Alton, Illinois.

1883. *Eotrochus concavus*. Hall, 12th Rep. Geol. Surv. Ind., p. 365, pl. 32, figs. 21-23.

St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.

EPHIPPIOCERAS Hyatt, 1883.***Ephippioceras divisus* White and St. John.**

1868. *Nautilus divisus*. White and St. John, Trans. Chicago Acad. Sci., vol. 1, p. 124, fig. 9.

Upper Coal Measures: Fremont County, Iowa.

1891. *Ephippioceras divisum*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 350, figs. 52-54.

Lower Coal Measures: Near Oswego, Kansas; Kansas City, Missouri; Texas.

***Ephippioceras ferratus* Cox.**

1857. *Nautilus ferratus*. Cox, Geol. Rep. Ky., vol. 3, p. 574, pl. 10, figs. 2, 2a.

Coal Measures: Nolin Iron Works, Edmonson County, Kentucky.

1895. *Ephippioceras ferratum*. Hyatt, Phyl. Acq. Char., p. 539, pl. 10, figs. 23-26.

1897. *Ephippioceras ferratum*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 43.

Lower Coal Measures: Conway County, Arkansas.

ERETMOCRINUS Lyon and Casseday, 1859.

Eretmocrinus adultus. See *Dizygocrinus originarius* var. *adultus*.

***Eretmocrinus attenuatus* Hall.**

- *1861. *Actinocrinocrinus matula* var. *attenuata*. Hall, Desc. New Spec. Crin., p. 14.

Burlington L. S.

1893. *Eretmocrinus attenuatus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 18, pl. 1, figs. 23, 24.

Burlington L. S.: Burlington, Iowa.

Eretmocrinus calyculoides Hall.

1860. *Actinocrinus calyculoides*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 17.
Burlington L. S.: Burlington, Iowa.
1872. *Actinocrinus calyculoides*. Hall, Photo. Plates of Crinoids, pl. 3, figs. 2-5.
1894. *Eretmocrinus calyculoides*. Keyes, Mo. Geol. Surv., vol. 4, p. 177, pl. 23,
fig. 13.
Upper Burlington L. S.: Ash Grove, Missouri.
1897. *Eretmocrinus calyculoides*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 395, pl. 34, figs. 1a, b, 2-4.
Upper Burlington L. S.: Burlington, Iowa; Henderson County, Illinois;
Sedalia, Missouri.

Eretmocrinus calyculoides var. nodosus Wachsmuth and Springer.

1897. *Eretmocrinus calyculoides* var. *nodosus*. Wachsmuth and Springer, N. Am.
Crin. Cam., p. 396, pl. 34, figs. 6-8.
Upper Burlington L. S.: Pleasant Grove, Iowa.

Eretmocrinus carica. See *Macrocrinus carica*.**Eretmocrinus casedayanus.** See *Eretmocrinus remibrachiatus* var. *expansus*.**Eretmocrinus clio Hall.**

1861. *Actinocrinus clio*. Hall, Desc. New Spec. Crin., p. 1.
Burlington L. S.
1861. *Actinocrinus clio*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 262.
Burlington L. S.: Burlington, Iowa.
1872. *Actinocrinus (Eretmocrinus) Clio*. Hall, Photo. Plates of Crinoids, pl. 4,
fig. 7.
1897. *Eretmocrinus clio*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 393,
pl. 36, figs. 2a, b, pl. 37, figs. 9a, b.
Lower Burlington L. S.: Burlington, Iowa.

Eretmocrinus clælia Hall.

1861. *Actinocrinus clælia*. Hall, Desc. New Spec. Crin., p. 1.
Burlington L. S.
1861. *Actinocrinus clælia*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 266.
Burlington L. S.: Burlington, Iowa.
1897. *Eretmocrinus clælia*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 398,
pl. 36, figs. 4a, b.
Upper Burlington L. S.: Burlington, Iowa.

Eretmocrinus commendabilis Miller and Gurley.

1895. *Eretmocrinus commendabilis*. Miller and Gurley, Bull. No. 6, Ill. State
Mus. Nat. Hist., p. 25, pl. 2, fig. 15.
Keokuk Group: Crawfordsville, Indiana.

Eretmocrinus corbulis Hall.

1861. *Actinocrinus corbulis*. Hall, Desc. New Spec. Crin., p. 1.
Burlington L. S.
1861. *Actinocrinus corbulis*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 265.
Burlington L. S.: Burlington, Iowa.
1894. *Eretmocrinus corbulis*. Keyes, Mo. Geol. Surv., vol. 4, p. 175, pl. 23, fig. 10.
Lower Burlington L. S.: Louisiana, Missouri.
1897. *Eretmocrinus corbulis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 399,
pl. 36, figs. 5a-c, 6.
Lower Burlington L. S.: Burlington, Iowa; Lake Valley, New Mexico.

Eretmocrinus coronatus Hall.

1860. *Actinocrinus coronatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 28.
Burlington L. S.: Burlington, Iowa.

Eretmocrinus coronatus Hall—Continued.

1872. *Actinocrinus coronatus*. Hall, Photo. Plates of Crinoids, pl. 4, figs. 1, 2.
 1873. *Eretmocrinus coronatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 10, figs. 8-8b.
 Burlington Group.
 1894. *Eretmocrinus coronatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 176.
 Lower Burlington L. S.: Louisiana, Missouri.
 1897. *Eretmocrinus coronatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 403, pl. 37, figs. 7a-c.
 Lower Burlington L. S.: Burlington, Iowa.

Eretmocrinus depressus Keyes.

1894. *Eretmocrinus depressus*. Keyes, Mo. Geol. Surv., vol. 4, p. 176, pl. 23, fig. 11.
 Lower Burlington L. S.: Hannibal, Missouri.
 1897. *Eretmocrinus depressus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 392, pl. 36, figs. 11a, b.
 Upper Burlington L. S.: Burlington, Iowa.

Eretmocrinus expansus Keyes.

1894. *Eretmocrinus expansus*. Keyes, Mo. Geol. Surv., vol. 4, p. 175, pl. 23, fig. 12.
 Lower Burlington L. S.: Kinderhook, Illinois.

Eretmocrinus granuliferus Wachsmuth and Springer.

1897. *Eretmocrinus granuliferus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 390, pl. 34, figs. 5a-c.
 Keokuk Group: Indian Creek, Montgomery County, Indiana; Canton, Indiana.

Eretmocrinus intermedius Wachsmuth and Springer.

1881. *Eretmocrinus intermedius*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 348. (Rev. Paleocr. II, p. 174.)
 Keokuk L. S.: Near Bono, Lawrence County, Indiana.
 1897. *Eretmocrinus intermedius*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 404, pl. 33, figs. 2a-c.
 Keokuk Group: Bono, Lawrence County, Indiana.

Eretmocrinus konincki. See Macrocrinus konincki.**Eretmocrinus leucosia Hall.**

1861. *Actinocrinus leucosia*. Hall, Desc. New Spec. Crin., p. 1.
 Burlington L. S.
 1861. *Actinocrinus leucosia*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 261.
 Burlington L. S.: Burlington, Iowa.
 1891. *Dorycrinus confragosus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 34, pl. 5, figs. 12, 13.
 Burlington Group: Sedalia, Missouri.
 1892. *Batocrinus blairi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 39, pl. 6, figs. 7-10.
 Burlington Group: Sedalia, Missouri.
 1894. *Batocrinus blairi*. Miller, 18th Rep. Geol. Surv. Ind., p. 293, pl. 6, figs. 7-10.
 Burlington Group: Sedalia, Missouri.
 1894. *Eretmocrinus leucosia*. Keyes, Mo. Geol. Surv., vol. 4, p. 176.
 Burlington L. S.: Sedalia, Missouri.
 1894. *Batocrinus blairi*. Keyes, Mo. Geol. Surv., vol. 4, p. 180.
 Lower Burlington L. S.: Sedalia, Missouri.
 1897. *Eretmocrinus leucosia*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 401, pl. 36, figs. 7a-c.
 Lower Burlington L. S.: Burlington, Iowa; Sedalia, Missouri.

Eretmocrinus lyonsae. See *Eretmocrinus magnificus* and *Eretmocrinus remibrachiatas* var. *expansus*.

Eretmocrinus magnificus Lyon and Casseday.

1889. *Eretmocrinus magnificus*. Lyon and Casseday, *Am. Jour. Sci.*, 2, vol. 28, p. 241.

Subcarboniferous. Knobstone: Quarries near Louisville and Nashville Railroad; Clear Creek, Hardin County, Kentucky; Indiana.

1891. *Eretmocrinus lyonsae*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 59, pl. 10, fig. 3.

Keokuk Group: Little Beaver River, Kentucky.

1892. *Eretmocrinus lyonsae*. Miller, 17th Rep. Geol. Surv. Ind., p. 60, pl. 10, fig. 3.

Keokuk Group: Little Beaver River, Kentucky.

1897. *Eretmocrinus magnificus*. Wachsmuth and Springer, *N. Am. Crin. Cam.*, p. 386, pl. 37, fig. 3.

Keokuk Group: Clear Creek, Hardin County, Kentucky; New Ross, Montgomery County, Indiana; Pilot Knob, near Louisville, Kentucky; White's Creek Springs, near Nashville, Tennessee.

Eretmocrinus matatus Hall.

- *1861. *Actinocrinus matata*. Hall, Desc. New Spec. Crin., p. 14.

Burlington L. S.

1897. *Eretmocrinus matata*. Wachsmuth and Springer, *N. Am. Crin. Cam.*, p. 396, pl. 37, figs. 6a-c.

Upper Burlington L. S.: Burlington, Iowa.

Eretmocrinus minor Wachsmuth and Springer.

1897. *Eretmocrinus minor*. Wachsmuth and Springer, *N. Am. Crin. Cam.*, p. 391, pl. 36, figs. 10a, b.

Upper Burlington L. S.: Burlington, Iowa.

Eretmocrinus neglectus Meek and Worthen.

1868. *Batocrinus* (*Eretmocrinus*?) *neglectus*. Meek and Worthen, *Proc. Acad. Nat. Sci. Phil.*, p. 355.

Lower Burlington L. S.: Burlington, Iowa.

1873. *Batocrinus* (*Eretmocrinus*?) *neglectus*. Meek and Worthen, *Geol. Surv. Ill.*, vol. 5, p. 377, pl. 5, fig. 3.

Burlington L. S.: Burlington, Iowa.

1897. *Eretmocrinus neglectus*. Wachsmuth and Springer, *N. Am. Crin. Cam.*, p. 394, pl. 36, fig. 3.

Lower Burlington L. S.: Burlington, Iowa.

Eretmocrinus originarius. See *Dizygocrinus originarius*.

Eretmocrinus prae-gravis Miller.

1892. *Eretmocrinus prae-gravis*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 37, pl. 6, figs. 5, 6.

Keokuk Group: Washington County, Indiana.

1894. *Eretmocrinus prae-gravis*. Miller, 18th Rep. Geol. Surv. Ind., p. 291, pl. 6, figs. 5, 6.

Keokuk Group: Washington County, Indiana.

1897. *Eretmocrinus prae-gravis*. Wachsmuth and Springer, *N. Am. Crin. Cam.*, p. 405, pl. 34, figs. 9, 10.

Keokuk Group: White's Creek Springs, near Nashville, Tennessee; Pilot Knob, near Louisville, Kentucky; Barren County, Kentucky; New Ross, Montgomery County, Indiana.

Eretmocrinus ramulosus Hall.

1868. *Actinocrinus ramulosus*. Hall, *Geol. Iowa*, vol. 1, pt. 2, p. 615, pl. 15, fig. 7.

Keokuk L. S.: Nauvoo, Illinois.

Eretmocrinus ramulosus Hall—Continued.

1897. *Eretmocrinus ramulosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 387, pl. 37, figs. 4a, b, 5a-d.
Keokuk Group: Keokuk and Augusta, Iowa; Nauvoo, Illinois; White's Creek Springs, Tennessee.

Eretmocrinus remibrachiatus Hall.

1861. *Actinocrinus remibrachiatus*. Hall, Desc. New Spec. Crin., p. 11.
Burlington L. S.
1872. *Actinocrinus (Eretmocrinus) remibrachiatus*. Hall, Photo. Plates of Crinoids, pl. 4, figs. 8, 9.
1873. *Batocrinus (Eretmocrinus) remibrachiatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 370, pl. 10, fig. 5.
Burlington L. S.: Burlington, Iowa.
1894. *Eretmocrinus remibrachiatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 178.
Upper Burlington L. S.: Ash Grove, Missouri.
1897. *Eretmocrinus remibrachiatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 388, pl. 37, figs. 2a, b.
Upper Burlington L. S.: Burlington, Iowa.

Eretmocrinus remibrachiatus var. expansus Wachsmuth and Springer.

1894. *Eretmocrinus lyonanus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 17, pl. 3, fig. 1. (Not *E. lyonanus* Miller, 1891.)
Upper Burlington Group: Near Burlington, Iowa.
1894. *Eretmocrinus cassedayanus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist. (Corrigenda.)
1897. *Eretmocrinus remibrachiatus* var. *expansus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 390, pl. 36, fig. 1; pl. 37, figs. 1a, b; pl. 44, fig. 9.
Burlington and Keokuk Transition Bed: Near Burlington, Iowa; Henderson County, Illinois.

Eretmocrinus rugosus Wachsmuth and Springer.

1897. *Eretmocrinus rugosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 402, pl. 36, figs. 9a-c.
Lower Burlington L. S.: Burlington, Iowa.

Eretmocrinus varsoviensis. See *Dizygocrinus originarius*.

Eretmocrinus verneuillianus. See *Macrocrinus verneuillianus*.

ERIDOPORA Ulrich, 1882.**Eridopora macrostoma Ulrich.**

1882. *Eridopora macrostoma*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 5, p. 137, pl. 6, figs. 2, 2a.
Kaskaskia Group: Point Burnside, Kentucky.

Eridopora punctifera Ulrich.

1882. *Eridopora punctifera*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 5, p. 138, pl. 6, fig. 3.
Kaskaskia Group: Point Burnside, Kentucky.

ERISOCRINUS Meek and Worthen, 1865.**Erisocrinus antiquus Meek and Worthen.**

1869. *Erisocrinus antiquus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 71.
Lower Burlington L. S.: Burlington, Iowa.
1873. *Erisocrinus antiquus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 447, pl. 2, fig. 3.
Burlington L. S.: Burlington, Iowa.

Erisocrinus conideus Meek and Worthen.

1865. *Erisocrinus conideus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 150.
Coal Measures: Springfield, Illinois.

1866. *Erisocrinus conideus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 318,
fig. 35.

Coal Measures: Springfield, Illinois.

Erisocrinus inflexus. See *Ceriocrinus inflexus*.

Erisocrinus nebrascensis. See *Erisocrinus typus*.

Erisocrinus planus. See *Ceriocrinus planus*.

Erisocrinus tuberculatus. See *Eupachyrcinus tuberculatus*.

Erisocrinus typus Meek and Worthen.

1865. *Erisocrinus typus*. Meek and Worthen, Am. Jour. Sci. (2), vol. 39, p. 174.
Coal Measures: Near Springfield, Illinois.

1865. *Erisocrinus Nebrascensis*. Meek and Worthen, Am. Jour. Sci. (2), vol. 39,
p. 174.

Coal Measures: Bellevue, Nebraska.

1865. *Philocrinus pelvis*. Meek and Worthen, Am. Jour. Sci. (2), vol. 39, p. 350.

1866. *Erisocrinus typus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 317, fgs.
33, 34.

Coal Measures: Near Springfield, Illinois.

1872. *Erisocrinus typus*. Meek, U. S. Geol. Surv. Nebr., p. 146, pl. 1, figs. 3a, b.
Upper Coal Measures: Bellevue, Nebraska; Springfield, Illinois.

1873. *Erisocrinus typus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 561, pl. 24,
fig. 6.

Coal Measures: Springfield, Illinois.

1876. *Erisocrinus typus*. White, Powell's Rep. Geol. Uinta Mts., p. 89.

Lower Aubrey Group: Confluence of Grand and Green rivers.

1880. *Erisocrinus typus*. White, Cont. to Inv. Pal., No. 6, p. 126, pl. 33, fig. 5a.
Upper Coal Measures: Bellevue, Nebraska.

Erisocrinus whitei Meek and Worthen.

1869. *Erisocrinus Whitei*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 72.
Upper Burlington L. S.: Burlington, Iowa.

1873. *Erisocrinus Whitei*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 448,
pl. 2, fig. 2.

Burlington L. S.: Burlington, Iowa.

ESCHARA Lamark, 1801.**Escharcha concentrica** Prout.

1858. *Escharcha (?) concentrica*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 234.
Carboniferous L. S.: Organ Mountains, New Mexico.

Escharcha tuberculata Prout.

1858. *Escharcha (?) tuberculata*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 234.
Carboniferous L. S.: Organ Mountains, New Mexico.

ESTHERIA Ruppell, 1837.**Estheria dawsoni** Jones.

1868. *Estheria*. Dawson, Acad. Geol., p. 256, fig. 78d.
Carboniferous: Horton Bluff, Nova Scotia.

1870. *Estheria Dawsoni*. Jones, Geol. Mag. (1), vol. 7, p. 220, pl. 9, fig. 15.
Lower Carboniferous: Horton, Nova Scotia.

1878. *Estheria Dawsoni*. Jones, Geol. Mag. (2), vol. 5, p. 101, pl. 3, fig. 2.
Lower Carboniferous: Scotland.

***Estheria dawsoni* Jones—Continued.**

1884. *Estheria Dawsoni*. Jones and Kirkby, Geol. Mag. (3), vol. 1, p. 361, pl. 12, fig. 12.

Lower Carboniferous: Horton, Nova Scotia.

ETOBLATTINA Scudder, 1882.***Etoblattina accubita* Scudder.**

1895. *Etoblattina accubita*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 88, pl. 7, fig. 2.

Lower Permian: Cassville, West Virginia.

***Etoblattina angusta* Scudder.**

1895. *Etoblattina angustata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 100, pl. 8, fig. 8.

Lower Permian: Cassville, West Virginia.

***Etoblattina aperta* Scudder.**

1895. *Etoblattina aperta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 80, pl. 5, fig. 9.

Lower Permian: Cassville, West Virginia.

***Etoblattina areta* Scudder.**

1895. *Etoblattina areta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 97, pl. 8, fig. 5.

Lower Permian: Cassville, West Virginia.

***Etoblattina balteata* Scudder.**

1879. *Gerablattina balteata*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 110, pl. 6, figs. 9, 10.

Permo-Carboniferous: Cassville, Monongalia County, West Virginia; Bellaire, Ohio.

1880. *Gerablattina balteata*. Fontaine and White, 2d Geol. Surv. Penn., Rept. PP, p. 144, pl. 38, fig. 5.

Roof Shales of Waynesburg Coal: Cassville, West Virginia.

1890. *Gerablattina balteata*. Scudder, Foss. Insc. N. A., vol. 1, p. 130, pl. 6, figs. 9, 10.

Permo-Carboniferous: Cassville, West Virginia; and Bellaire, Ohio.

1895. *Etoblattina balteata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 73.

Lower Permian: Cassville, West Virginia.

Coal Measures: Bellaire, Ohio.

***Etoblattina benedicta* Scudder.**

1895. *Etoblattina benedicta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 84, pl. 5, figs. 14, 15.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina clarkii* Scudder.**

1893. *Etoblattina clarkii*. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 14, pl. 2, fig. j.

Carboniferous: Pawtucket, Rhode Island.

1895. *Etoblattina clarkii*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 72, pl. 5, fig. 10.

Lower (?) Coal Measures: Pawtucket, Rhode Island.

***Etoblattina clintoniana* Scudder.**

1895. *Etoblattina clintoniana*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 66, pl. 4, fig. 1.

Lower Coal Measures: Gilkerston Ford, near Clinton, Missouri.

***Etoblattina communis* Scudder.**

1895. *Etoblattina communis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 93, pl. 7, figs. 10-17.

Lower Permian: Cassville, West Virginia.

Etoblattina debilis Scudder.

1895. *Etoblattina debilis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 71, pl. 4, fig. 8.
Lower Permian: Cassville, West Virginia.

Etoblattina defossa Scudder.

1895. *Etoblattina defossa*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 108, pl. 9, fig. 12.
Lower Permian: Cassville, West Virginia.

Etoblattina detecta Scudder.

1895. *Etoblattina detecta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 75, pl. 4, figs. 12, 13.
Lower Permian: Cassville, West Virginia.

Etoblattina eakiniana Scudder.

1895. *Etoblattina eakiniana*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 88, pl. 7, fig. 1.
Lower Permian: Cassville, West Virginia.

Etoblattina exigua Scudder.

1895. *Etoblattina exigua*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 76, pl. 5, fig. 4.
Lower Permian: Cassville, West Virginia.

Etoblattina exilis Scudder.

1893. *Etoblattina exilis*. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 17, pl. 2, fig. e.
Carboniferous: Rhode Island.
1895. *Etoblattina exilis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 101, pl. 9, fig. 1.
Lower (1) Coal Measures: East Providence, Rhode Island.

Etoblattina expugnata Scudder.

1895. *Etoblattina expugnata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 102, pl. 9, fig. 4.
Lower Permian: Cassville, West Virginia.

Etoblattina expulsata Scudder.

1895. *Etoblattina expulsata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 89, pl. 7, figs. 3, 4.
Lower Permian: Cassville, West Virginia.

Etoblattina expuncta Scudder.

1895. *Etoblattina expuncta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 79, pl. 5, fig. 6.
Lower Permian: Cassville, West Virginia.

Etoblattina exsecuta Scudder.

1895. *Etoblattina exsecuta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 96, pl. 8, fig. 4.
Lower Permian: Cassville, West Virginia.

Etoblattina exsensa Scudder.

1895. *Etoblattina exsensa*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 86, pl. 6, figs. 7, 8.
Lower Coal Measures: Wills Creek, Richmond, Ohio.

Etoblattina fasciata Scudder.

1888. *Etoblattina fasciata*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 24, p. 47.
Barren Coal Measures: Richmond, Ohio; and Cassville, West Virginia.
1895. *Etoblattina fasciata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 81, pl. 5, fig. 11.
Lower Coal Measures: Wills Creek, Richmond, Ohio.

Etoblattina fossa Scudder.

1895. *Etoblattina fossa*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 70, pl. 4, fig. 5.
Lower Coal Measures: Wills Creek, Richmond, Ohio.

Eretmocrinus coronatus Hall—Continued.

1872. *Actinocrinus coronatus*. Hall, Photo. Plates of Crinoids, pl. 4, figs. 1, 2.
 1873. *Eretmocrinus coronatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 10, figs. 8-8b.
 Burlington Group.
 1894. *Eretmocrinus coronatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 176.
 Lower Burlington L. S.: Louisiana, Missouri.
 1897. *Eretmocrinus coronatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 403, pl. 37, figs. 7a-c.
 Lower Burlington L. S.: Burlington, Iowa.

Eretmocrinus depressus Keyes.

1894. *Eretmocrinus depressus*. Keyes, Mo. Geol. Surv., vol. 4, p. 176, pl. 23, fig. 11.
 Lower Burlington L. S.: Hannibal, Missouri.
 1897. *Eretmocrinus depressus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 392, pl. 36, figs. 11a, b.
 Upper Burlington L. S.: Burlington, Iowa.

Eretmocrinus expansus Keyes.

1894. *Eretmocrinus expansus*. Keyes, Mo. Geol. Surv., vol. 4, p. 175, pl. 23, fig. 12.
 Lower Burlington L. S.: Kinderhook, Illinois.

Eretmocrinus granuliferus Wachsmuth and Springer.

1897. *Eretmocrinus granuliferus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 390, pl. 34, figs. 5a-c.
 Keokuk Group: Indian Creek, Montgomery County, Indiana; Canton, Indiana.

Eretmocrinus intermedius Wachsmuth and Springer.

1881. *Eretmocrinus intermedius*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 348. (Rev. Paleocr. II, p. 174.)
 Keokuk L. S.: Near Bono, Lawrence County, Indiana.
 1897. *Eretmocrinus intermedius*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 404, pl. 33, figs. 2a-c.
 Keokuk Group: Bono, Lawrence County, Indiana.

Eretmocrinus konincki*. See *Macrocrinus konincki*.*Eretmocrinus leucosia Hall.**

1861. *Actinocrinus leucosia*. Hall, Desc. New Spec. Crin., p. 1.
 Burlington L. S.
 1861. *Actinocrinus leucosia*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 261.
 Burlington L. S.: Burlington, Iowa.
 1891. *Dorycrinus confragosus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 34, pl. 5, figs. 12, 13.
 Burlington Group: Sedalia, Missouri.
 1892. *Batocrinus blairi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 39, pl. 6, figs. 7-10.
 Burlington Group: Sedalia, Missouri.
 1894. *Batocrinus blairi*. Miller, 18th Rep. Geol. Surv. Ind., p. 293, pl. 6, figs. 7-10.
 Burlington Group: Sedalia, Missouri.
 1894. *Eretmocrinus leucosia*. Keyes, Mo. Geol. Surv., vol. 4, p. 176.
 Burlington L. S.: Sedalia, Missouri.
 1894. *Batocrinus blairi*. Keyes, Mo. Geol. Surv., vol. 4, p. 180.
 Lower Burlington L. S.: Sedalia, Missouri.
 1897. *Eretmocrinus leucosia*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 401, pl. 36, figs. 7a-c.
 Lower Burlington L. S.: Burlington, Iowa; Sedalia, Missouri.

Eretmocrinus lyonanus. See *Eretmocrinus magnificus* and *Eretmocrinus remibrachiatus* var. *expansus*.

***Eretmocrinus magnificus* Lyon and Casseday.**

1859. *Eretmocrinus magnificus*. Lyon and Casseday, Am. Jour. Sci. (2), vol. 28, p. 241.
Subcarboniferous (Knobstone): Quarries near Louisville and Nashville Railroad; Clear Creek, Hardin County, Kentucky; Indiana.
1891. *Eretmocrinus lyonanus*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 59, pl. 10, fig. 3.
Keokuk Group: Little Beaver River, Kentucky.
1892. *Eretmocrinus lyonanus*. Miller, 17th Rep. Geol. Surv. Ind., p. 669, pl. 10, fig. 3.
Keokuk Group: Little Beaver River, Kentucky.
1897. *Eretmocrinus magnificus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 386, pl. 37, fig. 3.
Keokuk Group: Clear Creek, Hardin County, Kentucky; New Ross, Montgomery County, Indiana; Pilot Knob, near Louisville, Kentucky; White's Creek Springs, near Nashville, Tennessee.

***Eretmocrinus matutus* Hall.**

- *1861. *Actinocrinus matuta*. Hall, Desc. New Spec. Crin., p. 14.
Burlington L. S.
1897. *Eretmocrinus matuta*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 396, pl. 37, figs. 6a-c.
Upper Burlington L. S.: Burlington, Iowa.

***Eretmocrinus minor* Wachsmuth and Springer.**

1897. *Eretmocrinus minor*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 391, pl. 36, figs. 10a, b.
Upper Burlington L. S.: Burlington, Iowa.

***Eretmocrinus neglectus* Meek and Worthen.**

1868. *Batocrinus* (*Eretmocrinus?*) *neglectus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 355.
Lower Burlington L. S.: Burlington, Iowa.
1873. *Batocrinus* (*Eretmocrinus?*) *neglectus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 377, pl. 5, fig. 3.
Burlington L. S.: Burlington, Iowa.
1897. *Eretmocrinus neglectus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 394, pl. 36, fig. 3.
Lower Burlington L. S.: Burlington, Iowa.

***Eretmocrinus originarius*. See *Dizygocrinus originarius*.**

***Eretmocrinus prægravis* Miller.**

1892. *Eretmocrinus prægravis*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 37, pl. 6, figs. 5, 6.
Keokuk Group: Washington County, Indiana.
1894. *Eretmocrinus prægravis*. Miller, 18th Rep. Geol. Surv. Ind., p. 291, pl. 6, figs. 5, 6.
Keokuk Group: Washington County, Indiana.
1897. *Eretmocrinus prægravis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 405, pl. 34, figs. 9, 10.
Keokuk Group: White's Creek Springs, near Nashville, Tennessee; Pilot Knob, near Louisville, Kentucky; Barren County, Kentucky; New Ross, Montgomery County, Indiana.

***Eretmocrinus ramulosus* Hall.**

1858. *Actinocrinus ramulosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 615, pl. 15, fig. 7.
Keokuk L. S.: Nauvoo, Illinois.

Eretmocrinus ramulosus Hall—Continued.

1897. *Eretmocrinus ramulosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 387, pl. 37, figs. 4a, b, 5a-d.
Keokuk Group: Keokuk and Augusta, Iowa; Nauvoo, Illinois; White's Creek Springs, Tennessee.

Eretmocrinus remibrachiatus Hall.

1861. *Actinocrinus remibrachiatus*. Hall, Desc. New Spec. Crin., p. 11.
Burlington L. S.
1872. *Actinocrinus (Eretmocrinus) remibrachiatus*. Hall, Photo. Plates of Crinoids, pl. 4, figs. 8, 9.
1873. *Batocrinus (Eretmocrinus) remibrachiatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 370, pl. 10, fig. 5.
Burlington L. S.: Burlington, Iowa.
1894. *Eretmocrinus remibrachiatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 178.
Upper Burlington L. S.: Ash Grove, Missouri.
1897. *Eretmocrinus remibrachiatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 388, pl. 37, figs. 2a, b.
Upper Burlington L. S.: Burlington, Iowa.

Eretmocrinus remibrachiatus var. expansus Wachsmuth and Springer.

1894. *Eretmocrinus lyonanus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 17, pl. 3, fig. 1. (Not *E. lyonanus* Miller, 1891.)
Upper Burlington Group: Near Burlington, Iowa.
1894. *Eretmocrinus casedayanus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist. (Corrigenda.)
1897. *Eretmocrinus remibrachiatus var. expansus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 390, pl. 36, fig. 1; pl. 37, figs. 1a, b; pl. 44, fig. 9.
Burlington and Keokuk Transition Bed: Near Burlington, Iowa; Henderson County, Illinois.

Eretmocrinus rugosus Wachsmuth and Springer.

1897. *Eretmocrinus rugosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 402, pl. 36, figs. 9a-c.
Lower Burlington L. S.: Burlington, Iowa.

Eretmocrinus varsoviensis. See *Dizygocrinus originarius*.

Eretmocrinus verneuillianus. See *Macrocrinus verneuillianus*.

ERIDOPORA Ulrich, 1882.**Eridopora macrostoma Ulrich.**

1882. *Eridopora macrostoma*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 5, p. 137, pl. 6, figs. 2, 2a.
Kaskaskia Group: Point Burnside, Kentucky.

Eridopora punctifera Ulrich.

1882. *Eridopora punctifera*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 5, p. 138, pl. 6, fig. 3.
Kaskaskia Group: Point Burnside, Kentucky.

ERISOCRINUS Meek and Worthen, 1865.**Erisocrinus antiquus Meek and Worthen.**

1869. *Erisocrinus antiquus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 71.
Lower Burlington L. S.: Burlington, Iowa.
1873. *Erisocrinus antiquus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 447, pl. 2, fig. 3.
Burlington L. S.: Burlington, Iowa.

Erisocrinus conideus Meek and Worthen.

1865. *Erisocrinus conideus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 150.
Coal Measures: Springfield, Illinois.

1866. *Erisocrinus conideus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 318,
fig. 35.

Coal Measures: Springfield, Illinois.

Erisocrinus inflexus. See *Ceriocrinus inflexus*.

Erisocrinus nebrascensis. See *Erisocrinus typus*.

Erisocrinus planus. See *Ceriocrinus planus*.

Erisocrinus tuberculatus. See *Eupachyrcrinus tuberculatus*.

Erisocrinus typus Meek and Worthen.

1865. *Erisocrinus typus*. Meek and Worthen, Am. Jour. Sci. (2), vol. 39, p. 174.
Coal Measures: Near Springfield, Illinois.

1865. *Erisocrinus Nebrascensis*. Meek and Worthen, Am. Jour. Sci. (2), vol. 39,
p. 174.

Coal Measures: Bellevue, Nebraska.

1865. *Philocrinus pelvis*. Meek and Worthen, Am. Jour. Sci. (2), vol. 39, p. 350.

1866. *Erisocrinus typus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 317, figs.
33, 34.

Coal Measures: Near Springfield, Illinois.

1872. *Erisocrinus typus*. Meek, U. S. Geol. Surv. Nebr., p. 146, pl. 1, figs. 3a, b.

Upper Coal Measures: Bellevue, Nebraska; Springfield, Illinois.

1873. *Erisocrinus typus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 561, pl. 24,
fig. 6.

Coal Measures: Springfield, Illinois.

1876. *Erisocrinus typus*. White, Powell's Rep. Geol. Uinta Mts., p. 89.

Lower Aubrey Group: Confluence of Grand and Green rivers.

1880. *Erisocrinus typus*. White, Cont. to Inv. Pal., No. 6, p. 126, pl. 33, fig. 5a.
Upper Coal Measures: Bellevue, Nebraska.

Erisocrinus whitei Meek and Worthen.

1869. *Erisocrinus Whitei*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 72.
Upper Burlington L. S.: Burlington, Iowa.

1873. *Erisocrinus Whitei*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 448,
pl. 2, fig. 2.

Burlington L. S.: Burlington, Iowa.

ESCHARA Lamark, 1801.**Eschara concentrica** Prout.

1858. *Eschara* (?) *concentrica*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 234.
Carboniferous L. S.: Organ Mountains, New Mexico.

Eschara tuberculata Prout.

1858. *Eschara* (?) *tuberculata*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 234.
Carboniferous L. S.: Organ Mountains, New Mexico.

ESTHERIA Ruppell, 1837.**Estheria dawsoni** Jones.

1868. *Estheria*. Dawson, Acad. Geol., p. 256, fig. 78d.
Carboniferous: Horton Bluff, Nova Scotia.

1870. *Estheria Dawsoni*. Jones, Geol. Mag. (1), vol. 7, p. 220, pl. 9, fig. 15.
Lower Carboniferous: Horton, Nova Scotia.

1878. *Estheria Dawsoni*. Jones, Geol. Mag. (2), vol. 5, p. 101, pl. 3, fig. 2.
Lower Carboniferous: Scotland.

***Estheria dawsoni* Jones—Continued.**

1884. *Estheria Dawsoni*. Jones and Kirkby, Geol. Mag. (3), vol. 1, p. 361, pl. 12, fig. 12.

Lower Carboniferous: Horton, Nova Scotia.

ETOBLATTINA Scudder, 1882.***Etoblattina accubita* Scudder.**

1895. *Etoblattina accubita*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 88, pl. 7, fig. 2.

Lower Permian: Cassville, West Virginia.

***Etoblattina angusta* Scudder.**

1895. *Etoblattina angustata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 100, pl. 8, fig. 8.

Lower Permian: Cassville, West Virginia.

***Etoblattina aperta* Scudder.**

1895. *Etoblattina aperta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 80, pl. 5, fig. 9.

Lower Permian: Cassville, West Virginia.

***Etoblattina arcta* Scudder.**

1895. *Etoblattina arcta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 97, pl. 8, fig. 5.

Lower Permian: Cassville, West Virginia.

***Etoblattina balteata* Scudder.**

1879. *Gerablattina balteata*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 110, pl. 6, figs. 9, 10.

Permo-Carboniferous: Cassville, Monongalia County, West Virginia; Bellaire, Ohio.

1880. *Gerablattina balteata*. Fontaine and White, 2d Geol. Surv. Penn., Rept. PP, p. 144, pl. 38, fig. 5.

Roof Shales of Waynesburg Coal: Cassville, West Virginia.

1890. *Gerablattina balteata*. Scudder, Foss. Insc. N. A., vol. 1, p. 130, pl. 6, figs. 9, 10.

Permo-Carboniferous: Cassville, West Virginia; and Bellaire, Ohio.

1895. *Etoblattina balteata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 73.

Lower Permian: Cassville, West Virginia.

Coal Measures: Bellaire, Ohio.

***Etoblattina benedicta* Scudder.**

1895. *Etoblattina benedicta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 84, pl. 5, figs. 14, 15.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina clarkii* Scudder.**

1893. *Etoblattina clarkii*. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 14, pl. 2, fig. f.

Carboniferous: Pawtucket, Rhode Island.

1895. *Etoblattina clarkii*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 72, pl. 5, fig. 10.

Lower (?) Coal Measures: Pawtucket, Rhode Island.

***Etoblattina clintoniana* Scudder.**

1895. *Etoblattina clintoniana*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 66, pl. 4, fig. 1.

Lower Coal Measures: Gilkerston Ford, near Clinton, Missouri.

***Etoblattina communis* Scudder.**

1895. *Etoblattina communis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 93, pl. 7, figs. 10-17.

Lower Permian: Cassville, West Virginia.

***Etoblattina debilis* Scudder.**

1895. *Etoblattina debilis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 71, pl. 4, fig. 8.
Lower Permian: Cassville, West Virginia.

***Etoblattina defossa* Scudder.**

1895. *Etoblattina defossa*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 108, pl. 9, fig. 12.
Lower Permian: Cassville, West Virginia.

***Etoblattina detecta* Scudder.**

1895. *Etoblattina detecta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 75, pl. 4, figs. 12, 13.
Lower Permian: Cassville, West Virginia.

***Etoblattina eakiniana* Scudder.**

1895. *Etoblattina eakiniana*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 88, pl. 7, fig. 1.
Lower Permian: Cassville, West Virginia.

***Etoblattina exigua* Scudder.**

1895. *Etoblattina exigua*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 76, pl. 5, fig. 4.
Lower Permian: Cassville, West Virginia.

***Etoblattina exilis* Scudder.**

1893. *Etoblattina exilis*. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 17, pl. 2, fig. e.
Carboniferous: Rhode Island.
1895. *Etoblattina exilis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 101, pl. 9, fig. 1.
Lower (?) Coal Measures: East Providence, Rhode Island.

***Etoblattina expugnata* Scudder.**

1895. *Etoblattina expugnata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 102, pl. 9, fig. 4.
Lower Permian: Cassville, West Virginia.

***Etoblattina expulsata* Scudder.**

1895. *Etoblattina expulsata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 89, pl. 7, figs. 3, 4.
Lower Permian: Cassville, West Virginia.

***Etoblattina expuncta* Scudder.**

1895. *Etoblattina expuncta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 79, pl. 5, fig. 6.
Lower Permian: Cassville, West Virginia.

***Etoblattina exsecuta* Scudder.**

1895. *Etoblattina exsecuta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 96, pl. 8, fig. 4.
Lower Permian: Cassville, West Virginia.

***Etoblattina exsensa* Scudder.**

1895. *Etoblattina exsensa*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 86, pl. 6, figs. 7, 8.
Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina fasciata* Scudder.**

1888. *Etoblattina fasciata*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 24, p. 47.
Barren Coal Measures: Richmond, Ohio; and Cassville, West Virginia.
1895. *Etoblattina fasciata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 81, pl. 5, fig. 11.
Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina fossa* Scudder.**

1895. *Etoblattina fossa*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 70, pl. 4, fig. 5.
Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina funeraria* Scudder.**

1895. *Etoblattina funeraria*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 78, pl. 5, fig. 5.

Lower Permian: Cassville, West Virginia.

***Etoblattina funesta* Scudder.**

1895. *Etoblattina funesta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 85, pl. 6, fig. 4.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina gorhami* Scudder.**

1893. *Etoblattina gorhami*. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 16, pl. 2, fig. a.

Carboniferous: Pawtucket, Rhode Island.

1895. *Etoblattina gorhami*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 80, pl. 5, fig. 8.

Lower (?) Coal Measures: Pawtucket, Rhode Island.

***Etoblattina gracilenta* Scudder.**

1895. *Etoblattina gracilenta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 95, pl. 8, figs. 6, 7.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina gratiosa* Scudder.**

1895. *Etoblattina gratiosa*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 90, pl. 7, fig. 5.

Lower Permian: Cassville, West Virginia.

***Etoblattina hastata* Scudder.**

1895. *Etoblattina hastata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 94, pl. 8, fig. 1.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina hilliana* Scudder.**

1895. *Etoblattina hilliana*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 99, pl. 8, fig. 11.

Lower Coal Measures: Mazon Creek, Morris, Grundy County, Illinois.

***Etoblattina hustoni* Scudder.**

1888. *Etoblattina hustoni*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 24, p. 53.

Barren Coal Measures: Wills Creek, Richmond, Ohio.

1895. *Etoblattina hustoni*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 87, pl. 6, fig. 9.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina illustris* Scudder.**

1893. *Etoblattina illustris*. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 12, pl. 2, fig. i.

Carboniferous: Rhode Island.

1895. *Etoblattina illustris*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 70, pl. 4, fig. 11.

Lower (?) Coal Measures: Pawtucket (?), Rhode Island.

***Etoblattina immolata* Scudder.**

1895. *Etoblattina immolata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 92, pl. 7, figs. 7, 8.

Lower Permian: Cassville, West Virginia.

***Etoblattina imperfecta* Scudder.**

1895. *Etoblattina imperfecta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 104, pl. 9, fig. 8.

Lower Permian: Cassville, West Virginia.

***Etblattina invisa* Scudder.**

1895. *Etblattina invisa*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 106, pl. 9, fig. 9.

Lower Permian: Cassville, West Virginia.

***Etblattina jeffersoniana* Scudder.**

1895. *Etblattina jeffersoniana*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 71, pl. 5, fig. 7.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etblattina lata* Scudder.**

1895. *Etblattina lata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 67, pl. 4, fig. 2.

Lower Permian: Cassville, West Virginia.

***Etblattina latebricola* Scudder.**

1895. *Etblattina latebricola*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 108, pl. 9, fig. 11.

Lower (?) Coal Measures: East Providence, Rhode Island.

***Etblattina lesquereuxii* Scudder.**

1879. *Etblattina Lesquereuxii*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 67, pl. 6, figs. 3, 4.

Middle Carboniferous: Pittston, Pennsylvania.

1890. *Etblattina Lesquereuxii*. Scudder, Foss. Insc. N. Am., vol. 1, p. 87, pl. 6, figs. 3, 4.

Middle Carboniferous: Pittston, Pennsylvania.

1895. *Etblattina lesquereuxii*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 83.

Coal Measures: Yatesville, near Pittston, Pennsylvania.

***Etblattina macerata* Scudder.**

1895. *Etblattina macerata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 91, pl. 7, fig. 6.

Lower Permian: Cassville, West Virginia.

***Etblattina macilenta* Scudder.**

1895. *Etblattina macilenta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 101, pl. 8, fig. 9.

Lower Permian: Cassville, West Virginia.

***Etblattina mactata* Scudder.**

1895. *Etblattina mactata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 92, pl. 7, fig. 9.

Lower Permian: Cassville, West Virginia.

***Etblattina maledicta* Scudder.**

1895. *Etblattina maledicta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 83, pl. 6, figs. 1-3.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etblattina marginata* Scudder.**

1888. *Etblattina marginata*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 24, p. 48.

Barren Coal Measures: Richmond, Ohio.

1895. *Etblattina marginata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 95, pl. 8, fig. 2.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etblattina mazona* Scudder.**

1882. *Etblattina mazona*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 21, p. 391.

Coal Measures: Mazon Creek, Illinois.

1882. *Etblattina mazona*: Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 181, pl. 10.

Carboniferous: Mazon Creek, Illinois.

***Etblattina funeraria* Scudder.**

1895. *Etblattina funeraria*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 78, pl. 5, fig. 5.

Lower Permian: Cassville, West Virginia.

***Etblattina funesta* Scudder.**

1895. *Etblattina funesta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 85, pl. 6, fig. 4.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etblattina gorhami* Scudder.**

1893. *Etblattina gorhami*. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 16, pl. 2, fig. a.

Carboniferous: Pawtucket, Rhode Island.

1895. *Etblattina gorhami*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 80, pl. 5, fig. 8.

Lower (?) Coal Measures: Pawtucket, Rhode Island.

***Etblattina gracilenta* Scudder.**

1895. *Etblattina gracilenta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 95, pl. 8, figs. 6, 7.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etblattina grattiosa* Scudder.**

1895. *Etblattina grattiosa*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 90, pl. 7, fig. 5.

Lower Permian: Cassville, West Virginia.

***Etblattina hastata* Scudder.**

1895. *Etblattina hastata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 94, pl. 8, fig. 1.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etblattina hilliana* Scudder.**

1895. *Etblattina hilliana*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 99, pl. 8, fig. 11.

Lower Coal Measures: Mazon Creek, Morris, Grundy County, Illinois.

***Etblattina hustoni* Scudder.**

1888. *Etblattina hustoni*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 24, p. 53.

Barren Coal Measures: Wills Creek, Richmond, Ohio.

1895. *Etblattina hustoni*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 87, pl. 6, fig. 9.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etblattina illustris* Scudder.**

1893. *Etblattina illustris*. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 12, pl. 2, fig. i.

Carboniferous: Rhode Island.

1895. *Etblattina illustris*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 70, pl. 4, fig. 11.

Lower (?) Coal Measures: Pawtucket (?), Rhode Island.

***Etblattina immolata* Scudder.**

1895. *Etblattina immolata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 92, pl. 7, figs. 7, 8.

Lower Permian: Cassville, West Virginia.

***Etblattina imperfecta* Scudder.**

1895. *Etblattina imperfecta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 104, pl. 9, fig. 8.

Lower Permian: Cassville, West Virginia.

***Etoblattina invisa* Scudder.**

1895. *Etoblattina invisa*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 106, pl. 9, fig. 9.

Lower Permian: Cassville, West Virginia.

***Etoblattina jeffersoniana* Scudder.**

1895. *Etoblattina jeffersoniana*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 71, pl. 5, fig. 7.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina lata* Scudder.**

1895. *Etoblattina lata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 67, pl. 4, fig. 2.

Lower Permian: Cassville, West Virginia.

***Etoblattina latebricola* Scudder.**

1895. *Etoblattina latebricola*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 108, pl. 9, fig. 11.

Lower (?) Coal Measures: East Providence, Rhode Island.

***Etoblattina lesquereuxii* Scudder.**

1879. *Etoblattina Lesquereuxii*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 67, pl. 6, figs. 3, 4.

Middle Carboniferous: Pittston, Pennsylvania.

1890. *Etoblattina Lesquereuxii*. Scudder, Foss. Insc. N. Am., vol. 1, p. 87, pl. 6, figs. 3, 4.

Middle Carboniferous: Pittston, Pennsylvania.

1895. *Etoblattina lesquereuxii*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 83.

Coal Measures: Yatesville, near Pittston, Pennsylvania.

***Etoblattina macerata* Scudder.**

1895. *Etoblattina macerata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 91, pl. 7, fig. 6.

Lower Permian: Cassville, West Virginia.

***Etoblattina macilenta* Scudder.**

1895. *Etoblattina macilenta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 101, pl. 8, fig. 9.

Lower Permian: Cassville, West Virginia.

***Etoblattina mactata* Scudder.**

1895. *Etoblattina mactata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 92, pl. 7, fig. 9.

Lower Permian: Cassville, West Virginia.

***Etoblattina maledicta* Scudder.**

1895. *Etoblattina maledicta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 83, pl. 6, figs. 1-3.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina marginata* Scudder.**

1888. *Etoblattina marginata*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 24, p. 48.

Barren Coal Measures: Richmond, Ohio.

1895. *Etoblattina marginata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 95, pl. 8, fig. 2.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina mazona* Scudder.**

1882. *Etoblattina mazona*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 21, p. 391.

Coal Measures: Mazon Creek, Illinois.

1882. *Etoblattina mazona*: Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 181, pl. 10.

Carboniferous: Mazon Creek, Illinois.

***Etoblattina mazona* Scudder—Continued.**

1890. *Etoblattina mazona*. Scudder, Foss. Insc. N. A., vol. 1, p. 233, pl. 7a.
Carboniferous: Mazon Creek, Illinois.
1895. *Etoblattina mazona*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 89, pl. 6, fig. 5.
Lower Coal Measures: Mazon Creek, Illinois.

***Etoblattina mediana* Scudder.**

1895. *Etoblattina mediana*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 69, pl. 4,
fig. 4.
Lower Permian: Cassville, West Virginia.

***Etoblattina macronata* Scudder.**

1895. *Etoblattina macronata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 74, pl. 5,
fig. 3.
Lower Permian: Cassville, West Virginia.

***Etoblattina obatra* Scudder.**

1895. *Etoblattina obatra*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 103, pl. 9, fig. 5.
Lower Permian: Cassville, West Virginia.

***Etoblattina occidentalis* Scudder.**

1890. *Etoblattina occidentalis*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 410,
pl. 32, fig. 4.
Carboniferous: Lawrence, Kansas.
1890. *Etoblattina occidentalis*. Scudder, Foss. Insc. N. A., vol. 1, p. 386, pl. 24, fig. 4.
Carboniferous: Lawrence, Kansas.
1895. *Etoblattina occidentalis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 76.
Upper Coal Measures: Lawrence, Kansas.

***Etoblattina occulta* Scudder.**

1895. *Etoblattina occulta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 107, pl. 9,
fig. 13.
Lower Permian: Cassville, West Virginia.

***Etoblattina ovata* Scudder.**

1895. *Etoblattina ovata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 70, pl. 4, fig. 6.
Lower Permian: Cassville, West Virginia.

***Etoblattina patiens* Scudder.**

1895. *Etoblattina patiens*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 73, pl. 4, fig. 9.
Lower Permian: Cassville, West Virginia.

***Etoblattina prædulcis* Scudder.**

1895. *Etoblattina prædulcis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 98, pl. 8,
fig. 12.
Lower Permian: Cassville, West Virginia.

***Etoblattina ramosa* Scudder.**

1895. *Etoblattina ramosa*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 81, pl. 5,
fig. 12.
Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina recidiva* Scudder.**

1895. *Etoblattina recidiva*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 109, pl. 9,
fig. 14.
Lower Permian: Cassville, West Virginia.

***Etoblattina reliqua* Scudder.**

1893. *Etoblattina reliqua*. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 18, pl. 2, fig. 9.
Carboniferous: Pawtucket, Rhode Island.
1895. *Etoblattina reliqua*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 106, pl. 9,
fig. 10.
Lower (?) Coal Measures: Pawtucket, Rhode Island.

***Etoblattina residua* Scudder**

1895. *Etoblattina residua*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 78, pl. 5, fig. 1.
Lower Permian: Cassville, West Virginia.

***Etoblattina rogi* Scudder.**

1895. *Etoblattina rogi*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 102, pl. 9, figs. 2, 3.
Lower Permian: Cassville, West Virginia.

***Etoblattina sagittaria* Scudder.**

1895. *Etoblattina sagittaria*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 68, pl. 4, fig. 3.
Lower Permian: Cassville, West Virginia.

***Etoblattina scholfieldi* Scudder.**

1893. *Etoblattina scholfieldi*. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 15, pl. 2, fig. b.
Carboniferous: East Providence, Rhode Island.
1895. *Etoblattina scholfieldi*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 71, pl. 4, fig. 7.
Lower (?) Coal Measures: East Providence, Rhode Island.

***Etoblattina secreta* Scudder.**

1895. *Etoblattina secreta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 105, pl. 9, figs. 6, 7.
Lower Permian: Cassville, West Virginia.

***Etoblattina stipata* Scudder.**

1888. *Etoblattina stipata*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 24, p. 50.
Barren Coal Measures: Wills Creek, Richmond, Ohio.
1895. *Etoblattina stipata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 98, pl. 8, fig. 3.
Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina strigosa* Scudder.**

1888. *Etoblattina strigosa*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 24, p. 52.
Barren Coal Measures: Wills Creek, Richmond, Ohio.
1895. *Etoblattina strigosa*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 72, pl. 4, fig. 10.
Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina tenuis* Scudder.**

1888. *Etoblattina tenuis*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 24, p. 46.
Barren Coal Measures: Richmond, Ohio.
1895. *Etoblattina tenuis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 87, pl. 6, fig. 6.
Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina variegata* Scudder.**

1888. *Etoblattina variegata*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 24, p. 51.
Barren Coal Measures: Wills Creek, Richmond, Ohio.
1895. *Etoblattina variegata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 99, pl. 8, fig. 10.
Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina venusta* Lesquereux.**

1860. *Blattina venusta*. Lesquereux, 2d Rept. Geol. Surv. Ark., p. 314, pl. 5, fig. 11.
Carboniferous: Frog Bayou, Arkansas.
1879. *Etoblattina venusta*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 70, pl. 6, fig. 12.
Carboniferous: Frog Bayou, Arkansas.

***Etoblattina venusta* Lesquereux—Continued.**

1890. *Etoblattina venusta*. Scudder, Foss. Insc. N. A., vol. 1, p. 90, pl. 6, fig. 12.
Carboniferous: Frog Bayou, Arkansas.
1895. *Etoblattina venusta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 73.
Millstone Grit: Frog Bayou, Arkansas.

***Etoblattina willsiana* Scudder.**

1895. *Etoblattina willsiana*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 82, pl. 5, fig. 13.
Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina* (species undetermined).**

1893. *Etoblattina* sp. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 13, pl. 2, fig. c.
Carboniferous: Silver Spring, East Providence, Rhode Island.
1893. *Etoblattina* sp. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 16, pl. 2, fig. k.
Carboniferous: Fenner's Ledge, in Cranston, Rhode Island.
1893. *Etoblattina* sp. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 18, pl. 2, fig. h.
Carboniferous: Pawtucket, Rhode Island.
1895. *Etoblattina* sp. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 110, pl. 12, fig. 2.
Lower (?) Coal Measures: East Providence, Rhode Island.
1895. *Etoblattina* (?) sp. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 111, pl. 12, fig. 4.
Lower (?) Coal Measures: Cranston, Rhode Island.
1895. *Etoblattina* sp. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 77, pl. 5, fig. 2.
Lower (?) Coal Measures: Pawtucket, Rhode Island.
1895. *Etoblattina* sp. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 110, pl. 10, figs. 14, 15.
Lower Permian: Cassville, West Virginia.

EUOÆNUS Scudder, 1884.***Eucænus ovalis* Scudder.**

1885. *Eucænus ovalis*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 325, pl. 29, fig. 4.
Carboniferous: Mazon Creek, Illinois.
1890. *Eucænus ovalis*. Scudder, Foss. Insc. N. A., vol. 1, p. 289, pl. 15, fig. 4.
Carboniferous: Mazon Creek, Illinois.

EUCHONDRIA Meek, 1874.***Euchondria neglecta* Geinitz.**

1866. *Pecten neglectus*. Geinitz, Carb. und Dyas in Nebr., p. 33, tab. 2, fig. 17.
Nebraska City, Nebraska.
1872. *Aviculopecten neglectus*. Meek, U. S. Geol. Surv. Nebr., p. 193, pl. 9, figs. 1a, b.
Upper Coal Measures: Nebraska City, Nebraska.
Coal Measures: Illinois.
1873. *Aviculopecten neglectus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 589, pl. 26, fig. 7.
Upper and Lower Coal Measures: Illinois.
1874. *Euchondria neglectus*. Meek, Am. Jour. Sci. (3), vol. 7, p. 445.
1874. *Euchondria neglecta*. Meek, Am. Jour. Sci. (3), vol. 7, pp. 488, 489.
1884. *Euchondria neglectus*. Hall, Rep. N. Y. State Geol. for 1881, pl. 1, figs. 10, 11.
Coal Measures: Illinois.
1888. *Aviculopecten neglectus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 232.
Lower Coal Measures: Des Moines, Iowa.
1894. *Euchondria neglecta*. Keyes, Mo. Geol. Surv., vol. 5, p. 115.
Upper Coal Measures: Kansas City, Missouri.

EUCLADOCRINUS Meek, 1871.**Eucladocrinus millebrachiatus** Wachsmuth and Springer.

1878. *Eucladocrinus millebrachiatus*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 245.

Burlington and Keokuk transition bed: Near Burlington, Iowa.

1897. *Eucladocrinus millebrachiatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 720, pl. 73, fig. 1; pl. 74, figs. 2-9.

Burlington and Keokuk transition bed: Near Burlington, Iowa; Pleasant Grove, Iowa.

Keokuk Group: Niota and Nauvoo, Illinois.

Eucladocrinus millebrachiatus var. immaturus Wachsmuth and Springer.

1897. *Eucladocrinus millebrachiatus var. immaturus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 722, pl. 73, figs. 2, 3.

Burlington and Keokuk transition bed: Near Burlington, Iowa.

Eucladocrinus montanensis Meek.

1872. *Platycrinites (Eucladocrinus) Montanaensis*. Meek, U. S. Geol. Surv. Mont. and Adj. Terr. Rept. for 1871, p. 373.

Carboniferous: Utah or Wyoming.

1897. *Eucladocrinus montanensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 723, pl. 72, fig. 5.

Subcarboniferous: Montana.

Eucladocrinus pleurovimenus White.

1858. *Platycrinus discoidens*. Hall, Geol. Ia., vol. 1, pt. 2, p. 535, pl. 8, figs. 8a, b. (Not *P. discoidens* O. & S., 1850.)

Burlington L. S.: Burlington, Iowa.

1862. *Platycrinus pleurovimenus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 17.

Upper Burlington L. S.: Burlington, Iowa.

1894. *Eucladocrinus pleurovimenus*. Keyes, Mo. Geol. Surv., vol. 4, p. 202.

Upper Burlington L. S.: Ash Grove, Sedalia, and Hannibal, Missouri.

1897. *Eucladocrinus pleurovimenus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 724, pl. 73, fig. 4; pl. 74, fig. 1.

Upper Burlington L. S.: Burlington and Augusta, Iowa.

Eucladocrinus prænuntius Wachsmuth and Springer.

1878. *Platycrinus prænuntius*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 249.

Upper Burlington L. S.: Burlington, Iowa.

1894. *Platycrinus prænuntius*. Keyes, Mo. Geol. Surv., vol. 4, p. 198.

Burlington L. S.: Sedalia, Missouri.

1897. *Eucladocrinus prænuntius*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 726, pl. 73, fig. 5.

Upper Burlington L. S.: Burlington, Iowa; Missouri.

Eucladocrinus tuberosus Hall.

1858. *Platycrinus tuberosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 534, pl. 8, figs. 7a, b.

Burlington L. S.: Burlington, Iowa.

1891. *Platycrinus occidentalis*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 10, pl. 1, figs. 5, 6.

Burlington Group: Near Sedalia, Missouri.

1897. *Eucladocrinus tuberosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 728, pl. 72, figs. 3, 4a-c.

Upper Burlington L. S.: Burlington, Iowa; Sedalia, Missouri.

(*EULIMA* Risso, 1826.)

Eulima peracuta Meek and Worthen. See *Bulimorpha peracuta*.

EUMETRIA Hall, 1864.

Eumetria altirostris White.

1862. *Retzia (Acambona?) altirostris*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 28.
Chemung S. S.: Burlington, Iowa.

Eumetria marcyi Shumard.

1852. *Terebratula serpentaria?* Owen, Geol. Rep. Wis., Iowa, and Minn., tab. 3A, fig. 13. (Not De Koninck.)
Carboniferous: Skunk River, Iowa.
1854. *Terebratula marcyi*. Shumard, Marcy's Exp. Red River of Louis., p. 177, pl. 1, figs. 4a, b.
Carboniferous: Washington and Crawford counties, Arkansas.
1856. *Retzia Verneuiliana*. Hall, Trans. Albany Inst., vol. 4, p. 9.
St. Louis L. S.: Bloomington and Spergen Hill, Indiana.
1858. *Retzia verneuiliana*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 657, pl. 23, figs. 1a-d.
Warsaw L. S.: Spergen Hill and Bloomington, Indiana.
1858. *Retzia vera*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 704, pl. 27, fig. 3a.
Kaskaskia L. S.: Chester, Illinois.
1858. *Retzia vera* var. *costata*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 704, pl. 27, figs. 3a, b.
Kaskaskia L. S.: Chester, Illinois.
1882. *Eumetria Verneuiliana*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 50, pl. 6, figs. 28-30.
St. Louis Group: Spergen Hill, Paynter's Hill, and Bloomington, Indiana; Alton, Illinois.
1883. *Eumetria verneuiliana*. Hall, 12th Rep. Geol. Surv. Ind., p. 335, p. 29, figs. 28-30.
St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.
1884. *Retzia Verneuiliana*. Walcott, Pal. Eureka Dist., p. 220, pl. 7, figs. 5, 5a.
Lower Carboniferous: Little Belt Mountains, near Clendenin, Montana.
1894. *Eumetria Verneuiliana*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 37, figs. 1-4, 6, 10.
St. Louis Group: Spergen Hill, Indiana.
1894. *Retzia verneuiliana*. Keyes, Mo. Geol. Surv., vol. 5, p. 95.
St. Louis L. S.: St. Louis, Missouri.
1894. *Eumetria vera* var. *costata*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 37, figs. 5, 11.
Chester L. S.: Chester, Illinois; Crittenden County, Kentucky.
1894. *Eumetria vera*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 37, figs. 8, 12.
Chester L. S.: Crittenden County, Kentucky.
1894. *Retzia vera*. Keyes, Mo. Geol. Surv., vol. 5, p. 95.
Kaskaskia L. S.: Ste. Mary, Missouri.
1895. *Eumetria vera* var. *costata*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 51, figs. 27-33.
Chester L. S.: Crittenden County, Kentucky; Chester, Illinois.
1895. *Eumetria vera*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 51, figs. 36, 37.
Chester Group: Crittenden County, Kentucky.
1895. *Eumetria Verneuiliana*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 51, figs. 13-26, 34, 35; pl. 83, figs. 26, 27.
St. Louis Group: Spergen Hill, Indiana; Greene County, Missouri.
1897. *Eumetria verneuiliana*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 259.
Batesville S. S.: Batesville, Arkansas.

Eumetria osagensis. See *Acambona osagensis*.

Eumetria punctulifera. See *Hustedia mormoni*.

Eumetria vera. See *Eumetria marcyi*.

Eumetria veru var. *costata*. See *Eumetria marcyi*.

Eumetria verneuilana. See *Eumetria marcyi*.

Eumetria woosteri White.

1879. *Retzia woosteri*. White, Bull. U. S. Geol. and Geog. Surv. Terr., vol. 5, p. 215.

Carboniferous: 18 miles north of Greely, Colorado.

1880. *Retzia woosteri*. White, Cont. to Inv. Pal. No. 6, p. 134, pl. 34, figs. 8a, b.
Coal Measures: 32 miles west and 18 miles north of Greely, Colorado.

(EUMICROTIS Meek, 1864.)

Eumicrotis hawni. See *Pseudomonotis hawni*.

Eumicrotis hawni var. *ovata*. See *Pseudomonotis hawni* var. *ovata*.

Eumicrotis hawni var. *sinuata*. See *Pseudomonotis hawni* var. *sinuata*.

(EUNEMA Salter, 1859.)

Eunema salteri. Meek and Worthen. See *Orthonema salteri*.

(EUOMPHALUS Sowerby, 1812.)

Euomphalus ammon. See *Straparollus ammon*.

Euomphalus boonensis. See *Straparollus boonensis*.

Euomphalus exortivus. See *Straparollus exortivus*.

Euomphalus gyroceras. See *Phanerotinus gyroceras*.

Euomphalus latus. See *Straparollus latus*.

Euomphalus latus. See *Straparollus latus*.

Euomphalus lens. See *Straparollus lens*.

Euomphalus luxus. See *Straparollus luxus*.

Euomphalus obtusus. See *Straparollus obtusus*.

Euomphalus ophirensis. See *Straparollus ophirensis*.

Euomphalus pernodosus. See *Straparollus pernodosus*.

Euomphalus perspectivus. See *Straparollus planidorsatus*.

Euomphalus planidorsatus. See *Straparollus planidorsatus*.

Euomphalus planispira. See *Straparollus planispira*.

Euomphalus quadrivolvus. See *Straparollus quadrivolvus*.

Euomphalus roberti. See *Straparollus roberti*.

Euomphalus rugosus. See *Straparollus catilloides*.

Euomphalus spergenensis. See *Straparollus spergenensis*.

Euomphalus spergenensis var. *planorbiformis*. See *Straparollus spergenensis* var. *planorbiformis*.

Euomphalus spirorbis. See *Straparollus spirorbis*.

Euomphalus springvalensis. See *Omphalotrochus springvalensis*.

- Euomphalus subplanus*. See *Phanerotinus subplannus*.
Euomphalus subquadratus. See *Straparollus subquadratus*.
Euomphalus subrugosus. See *Straparollus catilloides*.
Euomphalus umbilicatus. See *Straparollus umbilicatus*.
Euomphalus utahensis. See *Straparollus utahensis*.
Euomphalus whitneyi. See *Omphalotrochus whitneyi*.

EUPACHYCRINUS Meek and Worthen, 1865.

***Eupachyrcrinus asperatus* Worthen.**

1882. *Eupachyrcrinus asperatus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 34.
 Chester L. S.: Monroe County, Illinois.
 1883. *Eupachyrcrinus asperatus*. Worthen, Geol. Surv. Ill., vol. 7, p. 311, pl. 29, fig. 4.
 Chester L. S.: Monroe County, Illinois.

***Eupachyrcrinus bassetti* Worthen.**

1875. *Eupachyrcrinus Bassetti*. Worthen, Geol. Surv. Ill., vol. 6, p. 528, pl. 32, fig. 2.
 Coal Measures: Vandalia, Illinois.

***Eupachyrcrinus boydii* Meek and Worthen.**

1870. *Eupachyrcrinus Boydii*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 30.
 Chester Group: Chester, Illinois.
 1873. *Eupachyrcrinus Boydii*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 554, pl. 21, fig. 6.
 Chester Group: Chester, Illinois.

***Eupachyrcrinus craigii*. See *Ceriocrinus craigii*.**

***Eupachyrcrinus crassus* Meek and Worthen.**

1860. *Cyathocrinus? crassus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 392.
 Lower Coal Measures: Avon, Fulton County, Illinois.
 1866. *Zeacrinus? crassus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 314, pl. 26, figs. 2a, b.
 Coal Measures: Avon, Fulton County, Illinois.

***Eupachyrcrinus fayettensis*. See *Ceriocrinus fayettensis*.**

***Eupachyrcrinus formosus* Worthen.**

1873. *Zeacrinus formosus*. Worthen, Geol. Surv. Ill., vol. 5, p. 549, pl. 21, fig. 2.
 Chester Group: Chester, Illinois.

***Eupachyrcrinus germanus*. See *Eupachyrcrinus spartarius*.**

***Eupachyrcrinus gracilis* Wetherby.**

1880. *Cromyocrinus gracilis*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 248, pl. 16, figs. 2-2e.
 Kaskaskia Group: Pulaski County, Kentucky.

***Eupachyrcrinus harii* Miller.**

1891. *Eupachyrcrinus harii*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 71, pl. 11, fig. 8.
 Coal Measures: Kansas City, Missouri.
 1892. *Eupachyrcrinus harii*. Miller, 17th Rep. Geol. Surv. Ind., p. 681, pl. 11, fig. 8.
 Coal Measures: Kansas City, Missouri.
 1894. *Eupachyrcrinus harii*. Keyes, Mo. Geol. Surv., vol. 4, p. 218, pl. 28, fig. 3.
 Upper Coal Measures: Kansas City, Missouri.

Eupachyrcrinus magister Miller and Gurley.

1890. *Eupachyrcrinus magister*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 4, pl. 1, figs. 1, 2.
Upper Coal Measures; Kansas City, Missouri.
1890. *Eupachyrcrinus magister*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 328, pl. 1, figs. 1, 2; also p. 371, pl. 10, figs. 6-8.
Upper Coal Measures: Kansas City, Missouri.
1894. *Eupachyrcrinus magister*. Keyes, Mo. Geol. Surv., vol. 4, p. 218, pl. 27, figs. 1a, b, 3.
Upper Coal Measures: Kansas City, Missouri.

Eupachyrcrinus maniformis Yandell and Shumard.

1847. *Cyathocrinus maniformis*. Yandell and Shumard, Cont. to Geol. of Ky., p. 25, pl., fig. 2.
Grayson, Kentucky.
1858. *Zeacrinus maniformis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 682, pl. 25, fig. 8.
Kaskaskia L. S.: Chester, Illinois.
1894. *Eupachyrcrinus maniformis*. Keyes, Mo. Geol. Surv., vol. 4, p. 217.
Kaskaskia L. S.: Chester, Illinois.

Eupachyrcrinus monroensis Worthen.

1882. *Eupachyrcrinus monroensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 34.
Chester L. S.: Monroe County, Illinois.
1883. *Eupachyrcrinus Monroensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 312, pl. 29, fig. 16.
Chester L. S.: Monroe County, Illinois.

Eupachyrcrinus mooresi Whitfield.

1882. *Zeacrinus Mooresi*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 227.
Coal Measures: Carbon Hill, Hocking County, Ohio.
1891. *Zeacrinus Mooresi*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 597, pl. 15, figs. 6-10.
Coal Measures: Carbon Hill, Hocking County, Ohio.
1895. *Zeacrinus Mooresi*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 483, pl. 11, figs. 6-10.
Coal Measures: Carbon Hill, Hocking County, Ohio.

Eupachyrcrinus orbicularis Hall.

1861. *Scaphiocrinus orbicularis*. Hall, Desc. New Spec. Crin., p. 7.
Keokuk L. S.
1861. *Scaphiocrinus orbicularis*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 311.
Keokuk L. S.: Keokuk, Iowa.
1872. *Scaphiocrinus orbicularis*. Hall, Photo. Plates of Crin., pl. 5, figs. 7-9.
1890. *Eupachyrcrinus orbicularis*. Worthen, Geol. Surv. Ill., vol. 8, p. 97, pl. 14, figs. 2, 2a.
Keokuk L. S.: Keokuk, Iowa.
1893. *Eupachyrcrinus orbicularis*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 30, pl. 3, figs. 8, 9.
Keokuk L. S.: Keokuk, Iowa.
1894. *Eupachyrcrinus orbicularis*. Keyes, Mo. Geol. Surv., vol. 4, p. 217.
Keokuk L. S.: Keokuk, Iowa; Hamilton, Illinois.

Eupachyrcrinus parvus Miller and Gurley.

1894. *Eupachyrcrinus parvus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 60, pl. 6, figs. 22, 23.
Upper Coal Measures: Kansas City, Missouri.

Eupachyrcrinus platybasis White.

1876. *Eupachyrcrinus platybasis*. White, Powell's Rep. Geol. Uinta Mts., p. 108.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1880. *Eupachyrcrinus platybasis*. White, Cont. to Inv. Pal., No. 6, p. 124, pl. 33,
fig. 8a.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.

Eupachyrcrinus quatuor-decem-brachialis Lyon.

1857. *Graphiocrinus 14 brachialis*. Lyon, Geol. Rep. Ky., vol. 3, p. 477, pl. 1,
figs. 2-2b.
Lower calcareous beds of Millstone Grit: Crittenden County, Kentucky.
1858. *Cyathocrinus (?) pentalobus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 687, pl. 25,
figs. 5a, b.
Kaskaskia L. S.: Pope County, Illinois.

Eupachyrcrinus sancti-ludovici. See Hydreionocrinus sancti-ludovici.**Eupachyrcrinus spartarius Miller.**

1879. *Eupachyrcrinus spartarius*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 38,
pl. 8, fig. 2.
Kaskaskia Group: Pulaski County, Kentucky.
1879. *Eupachyrcrinus germanus*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 40,
pl. 8, fig. 3.
Kaskaskia Group: Pulaski County, Kentucky.

Eupachyrcrinus sphaeralis Miller and Gurley.

1890. *Eupachyrcrinus sphaeralis*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist.,
vol. 13, p. 5, pl. 1, figs. 3, 4.
Upper Coal Measures: Kansas City, Missouri.
1890. *Eupachyrcrinus sphaeralis*. Miller and Gurley, 16th Rep. Geol. Surv. Ind.,
p. 329, pl. 1, figs. 3, 4.
Upper Coal Measures: Kansas City, Missouri.

Eupachyrcrinus subtumidus Worthen.

1873. *Zeacrinus subtumidus*. Worthen, Geol. Surv. Ill., vol. 5, p. 548, pl. 21, fig. 1.
Chester Group: Bay City, Pope County, Illinois.

Eupachyrcrinus tuberculatus Meek and Worthen.

1865. *Erisocrinus tuberculatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 150.
Upper Coal Measures: Sugar Creek, Sangamon County, Illinois, and near
Brighton, Jersey County, Illinois.
1866. *Erisocrinus tuberculatus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 319.
Coal Measures: Sugar Creek, Sangamon County, Illinois, and near
Brighton, Jersey County, Illinois.
1873. *Eupachyrcrinus tuberculatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5,
p. 566, p. 24, fig. 9.
Coal Measures: Near Brighton, Jersey County, Illinois; Parke County,
Illinois.

Eupachyrcrinus tumulosus Miller.

1891. *Eupachyrcrinus tumulosus*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind.,
p. 70, pl. 9, figs. 9, 10.
Kaskaskia Group: Breckinridge County, Kentucky.
1892. *Eupachyrcrinus tumulosus*. Miller, 17th Rep. Geol. Surv. Ind., p. 680, pl. 9,
figs. 9, 10.
Kaskaskia Group: Breckinridge County, Kentucky.

Eupachyrcrinus verrucosus White and St. John.

1868. *Hydreionocrinus? verrucosus*. White and St. John, Trans. Chicago Acad.
Sci., vol. 1, p. 117, fig. 1.
Upper Coal Measures: Western Iowa.

Eupachyrcinus verrucosus White and St. John—Continued.

1872. *Eupachyrcinus verrucosus*. Meek, U. S. Geol. Surv. Nebr., p. 150, figs. 3, 4.
Upper Coal Measures: Plattsmouth, Nebraska.
1894. *Eupachyrcinus verrucosus*. Keyes, Mo. Geol. Surv., vol. 4, p. 217, pl. 27, fig. 2.
Upper Coal Measures: Kansas City, Missouri.

Eupachyrcinus (species undetermined).

1888. *Eupachyrcinus* (sp. ?). Keyes, Proc. Acad. Nat. Sci. Phil., p. 225.
Lower Coal Measures: Des Moines, Iowa.

EUPHOBERIA Meek and Worthen, 1868.**Euphoberia anguilla** Scudder.

1882. *Euphoberia anguilla*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 177, pl. 12, fig. 20.
Carboniferous: Mazon Creek, Illinois.
1890. *Euphoberia anguilla*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, pp. 436, pl. 36, fig. 3.
Carboniferous: Mazon Creek, Illinois.
1890. *Euphoberia anguilla*. Scudder, Foss. Insc. N. A., vol. 1, pp. 229, 411, pl. 9, fig. 20; pl. 28, fig. 3.
Carboniferous: Mazon Creek, Illinois.

Euphoberia armigera Meek and Worthen.

1868. *Euphoberia armigera*. Meek and Worthen, Am. Jour. Sci. (2), vol. 46, p. 26.
Coal Measures: Mazon Creek, Grundy County, Illinois.
1868. *Euphoberia armigera*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 556, figs. A-D.
Coal Measures: Mazon Creek, Grundy County, Illinois.
1882. *Euphoberia armigera*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 160, pl. 12, figs. 1-3, 5, 6, 13; pl. 13, figs. 7, 8, 10.
Carboniferous: Mazon Creek, Illinois.
1890. *Euphoberia armigera*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 427, pl. 34, figs. 2, 4, 8; pl. 35, fig. 3.
Carboniferous: Mazon Creek, Illinois.
1890. *Euphoberia armigera*. Scudder, Foss. Insc. N. A., vol. 1, pp. 212, 403, pl. 9, figs. 1-3, 5, 6, 13; pl. 10, figs. 7, 8, 10; pl. 26, figs. 2, 4, 8; pl. 27, fig. 3.
Carboniferous: Mazon Creek, Illinois.

Euphoberia carri Scudder.

1882. *Euphoberia carri*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 171, pl. 12, figs. 4, 9-12, 14-19; pl. 13, figs. 16-18.
Carboniferous: Mazon Creek, Illinois.
1890. *Euphoberia carri*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, pp. 429.
Carboniferous: Mazon Creek, Illinois.
1890. *Euphoberia carri*. Scudder, Foss. Insc. N. A., vol. 1, pp. 223, 405, pl. 9, figs. 4, 9-12, 14-19; pl. 10, figs. 10, 18.
Carboniferous: Mazon Creek, Illinois.

Euphoberia cuspidata Scudder.

1890. *Euphoberia cuspidata*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, pp. 429, pl. 34, figs. 3, 7.
Carboniferous: Mazon Creek, Illinois.
1890. *Euphoberia cuspidata*. Scudder, Foss. Insc. N. A., vol. 1, pp. 405, pl. 26, figs. 3, 7.
Carboniferous: Mazon Creek, Illinois.

Euphoberia flabellata Scudder.

1882. *Euphoberia flabellata*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 174, pl. 13, fig. 15.

Carboniferous: Mazon Creek, Illinois.

1890. *Euphoberia flabellata*. Scudder, Foss. Insc. N. A., vol. 1, pp. 226, pl. 10, fig. 15.

Carboniferous: Mazon Creek, Illinois.

Euphoberia granosa Scudder.

1882. *Euphoberia granosa*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 168, pl. 12, figs. 22, 24-26, pl. 13, fig. 13.

Carboniferous: Mazon Creek, Illinois.

1890. *Euphoberia granosa*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 427, pl. 34, figs. 5, 6; pl. 36, fig. 2.

Carboniferous: Mazon Creek, Illinois.

1890. *Euphoberia granosa*. Scudder, Foss. Insc. N. A., vol. 1, pp. 220, 403, pl. 9, figs. 22, 24-26; pl. 10, fig. 13; pl. 26, figs. 5, 6; pl. 28, fig. 2.

Carboniferous: Mazon Creek, Illinois.

Euphoberia horrida Scudder.

1882. *Euphoberia horrida*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 158, pl. 13, figs. 11, 12, 14.

Carboniferous: Mazon Creek, Illinois.

1890. *Euphoberia horrida*. Scudder, Foss. Insc. N. A., vol. 1, pp. 210, pl. 10, figs. 11, 12, 14.

Carboniferous: Mazon Creek, Illinois.

Euphoberia hystriosa Scudder.

1890. *Euphoberia hystriosa*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 426, pl. 33, figs. 1-3.

Carboniferous: Mazon Creek, Illinois.

1890. *Euphoberia hystriosa*. Scudder, Foss. Insc. N. A., vol. 1, p. 402, pl. 25, figs. 1, 3.

Carboniferous: Mazon Creek, Illinois.

Euphoberia major Meek and Worthen. See *Acantherpestes major*.**Euphoberia simplex** Scudder.

1890. *Euphoberia simplex*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, pp. 432, pl. 35, figs. 2, 6, 7.

Carboniferous: Mazon Creek, Illinois.

1890. *Euphoberia simplex*. Scudder, Foss. Insc. N. A., vol. 1, pp. 408, pl. 27, figs. 2, 6, 7.

Carboniferous: Mazon Creek, Illinois.

Euphoberia spinulosa Scudder.

1890. *Euphoberia spinulosa*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, pp. 430, pl. 34, fig. 1; pl. 35, figs. 1, 4, 5; pl. 36, figs. 7, 8.

Carboniferous: Mazon Creek and Braidwood, Illinois.

1890. *Euphoberia spinulosa*. Scudder, Foss. Insc. N. A., vol. 1, pp. 406, pl. 26, fig. 1; pl. 27, figs. 1, 4, 5; pl. 28, figs. 7, 8.

Carboniferous: Mazon Creek and Braidwood, Illinois.

Euphoberia tracta Scudder.

1890. *Euphoberia tracta*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, pp. 433, pl. 36, figs. 1, 4-6.

Carboniferous: Mazon Creek, Illinois.

1890. *Euphoberia tracta*. Scudder, Foss. Insc. N. A., vol. 1, pp. 409, pl. 28, figs. 1, 4-6.

Carboniferous: Mazon Creek, Illinois.

Euphoberia (species undetermined).

1890. *Euphoberia* sp. Scudder, Mem. Bost. Soc. Nat. Hist., p. 435.
Carboniferous: Mazon Creek, Illinois.
1890. *Euphoberia* sp. Scudder, Foss. Insc. N. A., vol. 1, p. 411.
Carboniferous: Mazon Creek, Illinois.

(EUPROOPS Meek, 1867.)

Euproops colletti White. See *Prestwichia colletti*.*Euproops dana* Meek and Worthen. See *Prestwichia dana*.*Euproops longispina* Packard. See *Prestwichia longispina*.**EURYPTERUS De Kay, 1825.****Eurypterus mansfieldi Hall.**

1877. *Dolichopterus Mansfieldi*. Hall, Proc. Am. Phil. Soc., vol. 16, p. 621.
Carboniferous; Near Cannelton, Beaver County, Pennsylvania.
1888. *Eurypterus Mansfieldi*. Hall, 2d Geol. Surv. Penn., Rep. PPP, p. 32, pl. 4,
figs. 1-8; pl. 5, figs. 1-11; pl. 6, fig. 1; pl. 7, fig. 1; pl. 8, figs. 1-3.
Carboniferous: Near Cannelton, Beaver County, Pennsylvania.

Eurypterus mazonensis Meek and Worthen.

1868. *Eurypterus (Anthracopterus) Mazonensis*. Meek and Worthen, Am. Jour.
Sci. (2), vol. 46, p. 21.
Coal Measures: Mazon Creek, Grundy County, Illinois.
1868. *Eurypterus (Anthracopterus) Mazonensis*. Meek and Worthen, Geol. Surv.
Ill., vol. 3, p. 544, fig.
Coal Measures: Mazon Creek, Grundy County, Illinois.
1884. *Eurypterus (Anthracopterus) Mazonensis*. White, 13th Rep. Geol. Surv. Ind.,
p. 168, pl. 37, figs. 1-3.
Coal Measures: Mazon Creek, Grundy County, Illinois.
1884. *Eurypterus (Anthracopterus) Mazonensis*. Hall, 2d Geol. Surv. Penn., Rep.
PPP, pp. 25-27, figs. 2, 3.
Coal Measures: Mazon Creek, Grundy County, Illinois.

Eurypterus pennsylvanicus Hall.

1877. *Eurypterus Pennsylvanicus*. Hall, Proc. Am. Phil. Soc., vol. 16, p. 621.
Carboniferous: Rooker Farm, Venango County, Pennsylvania.
1884. *Eurypterus Pennsylvanicus*. Hall, 2d Geol. Surv. Penn., Rep. PPP, p. 31,
pl. 5, fig. 18.
Carboniferous: Rooker Farm, Pithole City, Venango County, Pennsylvania.

Eurypterus potens Hall.

1884. *Eurypterus potens*. Hall, 2d Geol. Surv. Penn., Rep. PPP, pl. 4, figs. 9, 10.
Carboniferous: Pennsylvania.

Eurypterus stylus Hall.

1884. *Eurypterus stylus*. Hall, 2d Geol. Surv. Penn., Rep. PPP, p. 34, pl. 5, figs.
12-15.
Carboniferous: Near Cannelton, Beaver County, Pennsylvania.

Eurypterus (species undetermined).

1863. *Eurypterus (?)* tail of. Salter, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 78,
fig. 4, p. 79.
Coal Measures: Joggins, Nova Scotia.
1863. *Eurypterus*; a large species allied to *E. Scoelerti*, Hibbert. Salter, Quart.
Jour. Geol. Soc. Lond., vol. 19, p. 78, fig. 5, p. 79.
Coal Measures: Port Hood, Cape Breton.

EUTROCHOCRINUS Wachsmuth and Springer, 1897.

Eutrochocrinus christyi Shumard.

1848. *Actinocrinites*. Christy, Letters on Geol., pl. 1, figs. 1-2.
Carboniferous Limestone: Oquawka, Illinois.
1855. *Actinocrinus Christyi*. Shumard, Geol. Rept. Mo., p. 191, pl. A, fig. 3.
Encrinital L. S.: Rocheport, Boone County, and near Palmyra, Marion County, Missouri.
1873. *Batocrinus christyi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 379, pl. 5, fig. 4.
1893. *Batocrinus bisbrachiatus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 13, pl. 2, figs. 4, 5.
Burlington L. S.: Burlington, Iowa.
1894. *Batocrinus altiusculus*. Miller and Gurley, Bull. No. 3, Ill., State Mus. Nat. Hist., p. 20, pl. 5, figs. 1-3.
Upper Burlington Group: Near Blackwater Station, west of Boonville, Missouri.
1894. *Batocrinus christyi*. Keyes, Mo. Geol. Surv., vol. 4, p. 181.
Upper Burlington L. S.: Ash Grove, Rocheport, Louisiana, and Palmyra, Missouri.
1897. *Eutocrinus christyi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 409, pl. 29, fig. 6, pl. 32, figs. 1a-c.
Upper Burlington L. S.: Burlington, Iowa; Illinois; Missouri.

Eutrochocrinus christyi var. trochiscus Meek and Worthen.

1868. *Batocrinus trochiscus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 354.
Upper Burlington L. S.: Burlington, Iowa.
1873. *Batocrinus trochiscus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 372, pl. 5, fig. 6.
Burlington L. S.: Burlington, Iowa.
1894. *Batocrinus trochiscus*. Keyes, Mo. Geol. Surv., vol. 4, p. 181, pl. 23, fig. 5.
Burlington L. S.: Sedalia, Missouri.
1897. *Eutrochocrinus Christyi* var. *trochiscus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 410, pl. 32, fig. 3.
Burlington and Keokuk transition bed: Des Moines County, Iowa; Nauvoo, Illin

Eutrochocrinus lovei Wachsmuth and Springer.

1881. *Batocrinus Lovei*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 342. (Rev. Palæocr. II, p. 168.)
Upper Burlington L. S.: Burlington, Iowa.
1897. *Eutrochocrinus Lovei*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 412, pl. 29, fig. 7, pl. 32, figs. 2a, b.
Upper Burlington L. S.: Burlington, Iowa.

Eutrochocrinus planodiscus Hall.

1860. *Actinocrinus planodiscus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 45.
Keokuk L. S.: Nauvoo, Illinois.
1894. *Batocrinus planodiscus*. Keyes, Mo. Geol. Surv., vol. 4, p. 184.
Keokuk L. S.: Keokuk and Bonaparte, Iowa.
1897. *Eutrochocrinus planodiscus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 411, pl. 32, figs. 4a, b.
Keokuk Group: Keokuk, Iowa; Nauvoo, Illinois.

EVACTINOPORA Meek and Worthen, 1865.

Evactinopora grandis Meek and Worthen.

1868. *Evactinopora grandis*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 503, pl. 15, figs. 2a-d.
Burlington Group: Burlington, Iowa.

Evactinopora grandis Meek and Worthen—Continued.

1890. *Eractinopora grandis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 511, pl. 73, fig. 4.
Burlington L. S.: Burlington, Iowa.
1894. *Evactinopora grandis*. Keyes, Mo. Geol. Surv., vol. 5, p. 19.
Burlington L. S.: Louisiana and Hannibal, Missouri.

Evactinopora quinqu radiata Ulrich.

1890. *Eractinopora quinqu radiata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 510, pl. 73, fig. 1.
Burlington L. S.: Burlington, Iowa; Montezuma, Illinois.

Evactinopora radiata Meek and Worthen.

1865. *Eractinopora radiata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 165.
Subcarboniferous: Missouri.
1868. *Evactinopora radiata*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 502, pl. 17, figs. 2a, b.
Lower Carboniferous L. S.: Missouri.
1884. *Eractinopora radiata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 42, pl. 2, figs. 1-1c.
1890. *Eractinopora radiata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 509, pl. 73, figs. 3, 3a.
Keokuk Group: Kings Mountain, Kentucky; Missouri.
1894. *Eractinopora radiata*. Keyes, Mo. Geol. Surv., vol. 5, p. 19.
Keokuk L. S.: Missouri.

Evactinopora sexradiata Meek and Worthen.

1868. *Eractinopora sexradiata*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 502, pl. 17, fig. 3.
Lower Carboniferous L. S.: Missouri.
1890. *Evactinopora sexradiata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 510, pl. 73, figs. 2-2b.
Burlington Group: Burlington, Iowa.
1894. *Evactinopora sexradiata*. Keyes, Mo. Geol. Surv., vol. 5, p. 18.
Burlington L. S.: Louisiana, Missouri; Burlington, Iowa.

(FAPHRENTIS Hall, 1852.)

Faphrentis multilamella Hall. See *Zaphrentis multilamella*.

Faphrentis stansburii Hall. See *Zaphrentis stansburyi*.

FAVIPHYLLUM Hall, 1852.

Faviphyllum rugosum Hall.

1852. *Faviphyllum? rugosum*. Hall, Stansb. Exped. Gt. Salt Lake, p. 407, pl. 1, figs. 1a, b.
Carboniferous: Region of Salt Lake, Utah.

FAVOSITES Lamark, 1812.

Favosites divergens White.

1862. *Favosites*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 306.
Chemung Group: Burlington, Iowa.
1874. *Favosites whitfieldi*. White, Prelim. Rep. Inv. Foss., p. 15.
Subcarboniferous: Ewell's Spring, Arizona.
1877. *Favosites divergens*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 79, pl. 5, fig. 4.
Subcarboniferous: Ewell's Spring, Arizona.

Favosites mancus Winchell.

1865. *Favosites? mancus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 112.
Geniatite L. S.: Rockford, Indiana.

Favosites richfieldi. See *Favosites divergens*.

Favosites (species undetermined).

1877. *Favosites* — (?) Whiteaves, Geol. Surv. Canada, Rep. of Prog. 1875-76, p. 98.

Devonian or Carboniferous: Fossil Point, Peace River, Canada.

FENESTELLA Lonsdale, 1839.

Fenestella albida Hall.

1887. *Fenestella albida*. Hall, 6th Ann. Rep. N. Y. State Geol., p. 48, pl. 7, figs. 1-7.

Waverly Group: Richfield, Summit County, Ohio.

1888. *Fenestella albida*. Ulrich, Bull. Den. Univ., vol. 4, p. 65.

Waverly Group: Richfield, Ohio.

Fenestella albida var. *richfieldensis* Ulrich.

1888. *Fenestella albida*, var. *richfieldensis*. Ulrich, Bull. Den. Univ., vol. 4, p. 66, pl. 13, figs. 3-3c.

Waverly Group: Richfield, Ohio.

Fenestella albida var. *Herrick*.

1888. *Fenestella albida* var. ? Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 36.

Waverly Group: Ohio.

Fenestella aperta Hall.

1887. *Fenestella aperta*. Hall, 6th Ann. Rep. N. Y. State Geol., p. 53, pl. 4, figs. 1-5.

Waverly Group: Richfield, Summit County, Ohio.

1888. *Fenestella aperta*. Ulrich, Bull. Den. Univ., vol. 4, p. 66.

Cuyahoga Shale: Richfield, Ohio.

Fenestella arctica Salter.

1855. *Fenestella arctica*. Salter, Belcher's "Last of the Arctic Voyages," p. 385, pl. 36, fig. 8.

Carboniferous: Depot Point.

1878. *Fenestella?* *arctica*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 618.

Carboniferous L. S.: Depot Point, Albert Land, and Feilden Isthmus, latitude 82° 43'.

Fenestella banyana Prout.

1859. *Fenestella banyana*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 450, pl. 18, figs. 4-4b.

Second Archimedes L. S.: Barrett's Station, St. Louis County, Missouri.

1894. *Fenestella banyana*. Keyes, Mo. Geol. Surv., vol. 5, p. 23.

St. Louis L. S.: Barrett Station, Missouri.

Fenestella burlingtonensis Ulrich.

1888. *Fenestella burlingtonensis*. Ulrich, Bull. Den. Univ., vol. 4, p. 71.

Waverly Group: Lodi, Ohio.

1890. *Fenestella burlingtonensis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 536, pl. 49, figs. 1, 1a.

Burlington L. S.: Burlington, Iowa.

Fenestella cavernosa Ulrich.

1888. *Fenestella cavernosa*. Ulrich, Bull. Den. Univ., vol. 4, p. 69, pl. 13, figs. 7-7b.

Waverly Group: Sciotoville, Ohio.

Fenestella cestriensis Ulrich.

1890. *Fenestella cestriensis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 547, pl. 51, figs. 5-5b.

Chester Group: Chester, Kaskaskia and near Anna, Illinois; Sloan's Valley and Litchfield, Kentucky.

1894. *Fenestella cestriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 24.

Kaskaskia L. S.: Chester, Illinois.

Fenestella cingulata Ulrich.

1890. *Fenestella cingulata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 543, pl. 52, figs. 1-1d.
Keokuk Group: Nauvoo, Illinois; Keokuk, Iowa.
1894. *Fenestella cingulata*. Keyes, Mo. Geol. Surv., vol. 5, p. 23.
Keokuk L. S.: Keokuk, Iowa.

Fenestella compressa Ulrich.

1890. *Fenestella compressa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 539, pl. 50, fig. 2a.
Keokuk Group: King's Mountain Tunnel, Kentucky.
Chester Group: Sloan's Valley, Kentucky.

Fenestella compressa var. *nododorsalis* Ulrich.

1890. *Fenestella compressa* var. *nododorsalis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 540, pl. 50, fig. 2.
Keokuk Group: King's Mountain Tunnel, Kentucky.

Fenestella conradi Ulrich.

1890. *Fenestella conradi*. Ulrich, Geol. Surv. Ill., vol. 8, p. 553, pl. 52, figs. 8, 8a.
Upper Coal Measures: 7 miles north of Red Oak, Iowa.

Fenestella corticata Prout.

1858. *Fenestella corticata*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 230.
Carboniferous L. S.: Organ Mountains, New Mexico.

Fenestella delicata Meek.

1871. *Fenestella delicata*. Meek, Proc. Acad. Nat. Sci. Phil., p. 159.
Waverly Group: Lodi, Ohio.
1875. *Fenestella delicata*. Meek, Pal. Ohio, vol. 2, p. 273, pl. 10, figs. 2a-d.
Waverly Group: Lodi, Ohio.

Fenestella delicatula Ulrich.

1890. *Fenestella delicatula*. Ulrich, Geol. Surv. Ill., vol. 8, p. 549, pl. 52, fig. 2.
Base of Coal Measures: Seville, Illinois.

Fenestella elevatipora Ulrich.

1890. *Fenestella elevatipora*. Ulrich, Geol. Surv. Ill., vol. 8, p. 549, pl. 51, figs. 3, 3a.
Chester Group: Crittenden County, Kentucky; Chester, Illinois.
1894. *Fenestella elevatipora*. Keyes, Mo. Geol. Surv., vol. 5, p. 25.
Kaskaskia L. S.: Chester, Illinois.

Fenestella exigua Ulrich.

1890. *Fenestella exigua*. Ulrich, Geol. Surv. Ill., vol. 8, p. 545, pl. 51, figs. 1, 1a.
Warsaw beds: Monroe County, Illinois.

Fenestella filistriata Ulrich.

1890. *Fenestella filistriata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 535, pl. 49, figs. 2, 2a.
Burlington L. S.: Burlington, Iowa; Montezuma, Illinois.
1894. *Fenestella filistriata*. Keyes, Mo. Geol. Surv., vol. 5, p. 22.
Burlington L. S.: Montezuma, Illinois.

Fenestella flexuosa Ulrich.

1890. *Fenestella flexuosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 548, pl. 51, figs. 4-4c.
Chester Group: Sloan's Valley, Kentucky; Chester, Illinois.
1894. *Fenestella flexuosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 24.
Kaskaskia L. S.: Chester, Illinois.

Fenestella foliata Ulrich.

1858. *Fenestella foliata*. Ulrich, Bull. Den. Univ., vol. 4, p. 67, pl. 13, figs. 4-4c.
Waverly Group: Cuyahoga Valley below second falls.

Fenestella funicula Ulrich.

1890. *Fenestella funicula*. Ulrich, Geol. Surv. Ill., vol. 8, p. 542, pl. 51, fig. 6.
Keokuk Group: Keokuk, Iowa.

Fenestella funicula Ulrich—Continued.

1894. *Fenestella funicula*. Keyes, Mo. Geol. Surv., vol. 5, p. 23.
Keokuk L. S.: Keokuk, Iowa.

Fenestella hemitrypa. See *Hemitrypa hemitrypa*.**Fenestella herrickana** Ulrich.

1888. *Fenestella herrickana*. Ulrich, Bull. Den. Univ., vol. 4, p. 63, pl. 13, figs. 2-2d.
Waverly Group: Moot's Run, Licking County, and Richfield, Ohio.

Fenestella inaequalis Ulrich.

1890. *Fenestella inaequalis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 554, pl. 52, figs. 9, 9a.
Upper Coal Measures: Ball's Mill, Sangamon County, Illinois.

Fenestella intermedia Prout.

1858. *Fenestella intermedia*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 231.
Carboniferous L. S.: Organ Mountains, New Mexico.

Fenestella laxa. See *Archimedes laxa*.**Fenestella limbata** Foerste.

1887. *Fenestella limbatus*. Foerste, Bull. Den. Univ., vol. 2, pp. 83, 87, pl. 7,
figs. 10a-d.
Coal Measures: Flint Ridge and Bald Hill, Ohio.

Fenestella limbata var. *remota* Foerste. See *Fenestella remota*.**Fenestella limitaris** Ulrich.

1890. *Fenestella limitaris*. Ulrich, Geol. Surv. Ill., vol. 8, p. 538, pl. 49, figs. 4, 4a.
Keokuk Group: Bentonsport and Keokuk, Iowa.
1894. *Fenestella limitaris*. Keyes, Mo. Geol. Surv., vol. 5, p. 23.
Keokuk L. S.: Keokuk, Iowa.

Fenestella lyelli Dawson.

1868. *Fenestella Lyelli*. Dawson, Acad. Geol., p. 288, figs. 86a-c.
Carboniferous L. S.: Stewiacke, Nova Scotia.

Fenestella lyri. See *Lyropora lyri*.**Fenestella meekana**. See *Archimedes meekana*.**Fenestella meekana** Ulrich.

1888. *Fenestella meekana*. Ulrich, Bull. Den. Univ., vol. 4, p. 64, pl. 13, figs. 1-1b.
Waverly Group: Richfield, Ohio; † Lodi, Ohio.

Fenestella mimica Ulrich.

1890. *Fenestella mimica*. Ulrich, Geol. Surv. Ill., vol. 8, p. 552, pl. 52, figs. 7, 7a.
Coal Measures: Seville, Illinois.

Fenestella modesta Ulrich.

1890. *Fenestella modesta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 550, pl. 52, figs. 3-3b.
Coal Measures: Knox County and Seville, Illinois.

Fenestella multiporata var. *lodiensis* Meek.

1875. *Fenestella multiporata* ? var. *Lodiensis*. Meek, Pal. Ohio, vol. 2, p. 274, pl. 10,
figs. 1a-c.
Waverly Group: Lodi, Ohio.

Fenestella multispinosa Ulrich.

1890. *Fenestella multispinosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 540, pl. 50, figs.
3-3c.
Keokuk Group: Bentonsport and Keokuk, Iowa; King's Mountain,
Kentucky.
1894. *Fenestella multispinosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 23.
Keokuk L. S.: Keokuk, Iowa.

Fenestella norwoodana Prout.

1858. *Fenestella Norwoodiana*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 233.
Carboniferous L. S.: Organ Mountains, New Mexico.

Fenestella owenana. See *Archimedes owenana*.**Fenestella perminuta** Ulrich.

1890. *Fenestella perminuta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 551, pl. 52, figs. 4-4b.
Coal Measures: Seville, Illinois.

Fenestella plumosa. See *Hemitrypa plumosa*.**Fenestella popeana** Prout.

1858. *Fenestella Popeana*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 229.
White Permian L. S.: Guadalupe Mountains, New Mexico.
1859. *Fenestella Popeana*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 388.
White and Dark Permian L. S.: Guadalupe Mountains.

Fenestella quincuncialis. See *Lyropora quincuncialis*.**Fenestella regalis** Ulrich.

1888. *Fenestella regalis*. Ulrich, Bull. Den. Univ., vol. 4, p. 70, pl. 13, figs. 5, 5a.
Cuyahoga Shale: Richland and Lodi, Ohio.
Keokuk Group: King's Mountain, Kentucky.
1890. *Fenestella regalis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 538, pl. 50, figs. 1, 1a;
pl. 54, fig. 5.
Keokuk Group: King's Mountain Tunnel, Kentucky, Cincinnati Southern
Railroad.

Fenestella remota Foerste.

1887. *Fenestella limbatus* var. *remotus*. Foerste, Bull. Den. Univ., vol. 2, p. 84.
Coal Measures: Flint Ridge and Bald Hill, Ohio.
1887. *Fenestella remota*. Foerste, Bull. Den. Univ., vol. 2, p. 87, pl. 7, fig. 5.

Fenestella retrorsa. See *Lyropora retrorsa*.**Fenestella rudis** Ulrich.

1890. *Fenestella rudis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 537, pl. 49, figs. 3-3d.
Keokuk L. S.: Keokuk and Bentonsport, Iowa; Warsaw and Nauvoo,
Illinois.
Warsaw beds: Warsaw, Illinois.
1894. *Fenestella rudis*. Keyes, Mo. Geol. Surv., vol. 5, p. 23, pl. 34, fig. 5.
Keokuk L. S.: St. Francisville, Missouri.

Fenestella serratula Ulrich.

1890. *Fenestella serratula*. Ulrich, Geol. Surv. Ill., vol. 8, p. 544, pl. 50, figs. 5-5c.
Keokuk Group: Nauvoo, Illinois.
Warsaw beds: Monroe County and Warsaw, Illinois.
St. Louis L. S.: Caldwell, Lyon, and Crittenden counties, Kentucky.
Chester Group: Sloan's Valley, Kentucky.
1894. *Fenestella serratula*. Keyes, Mo. Geol. Surv., vol. 5, p. 23.
Keokuk L. S.: Keokuk, Iowa.

Fenestella sevellensis Ulrich.

1890. *Fenestella sevellensis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 552, pl. 52, figs. 6, 6a.
Base of Coal Measures: Seville, Illinois.

Fenestella shumardi Prout.

1858. *Fenestella Shumardi*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 232.
Carboniferous L. S.: Organ Mountains, New Mexico.
1872. *Fenestella Shumardi*? Meek, U. S. Geol. Surv. Nebr., p. 153, pl. 7, figs. 3a-c.
Upper Coal Measures: Nebraska City, Nebraska.
Lower Coal Measures: Ohio.

Fenestella shumardi Prout—Continued,

1894. *Fenestella shumardi*. Keyes, Mo. Geol. Surv., vol. 5, p. 24, pl. 34, figs. 2a, b.
Upper Coal Measures: Kansas City, Missouri.
1897. *Fenestella shumardi*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 27.
Upper Coal Measures: Poteau Mountain, Indian Territory.

Fenestella subflexuosa Ulrich.

1888. *Fenestella subflexuosa*. Ulrich, Bull. Den. Univ., vol. 4, p. 68, pl. 13, fig. 6.
Cuyahoga Shale: Cuyahoga Falls, Ohio.

Fenestella subquadrans. See *Lyropora subquadrans*.**Fenestella swallovana**. See *Archimedes swallovana*.**Fenestella subretiformis** Prout.

1858. *Fenestella subretiformis*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 233.
Carboniferous L. S.: Organ Mountains, New Mexico.

Fenestella tenax Ulrich.

1888. *Fenestella tenax*. Ulrich, Bull. Den. Univ., vol. 4, p. 71.
Waverly Group: Cuyahoga County, Ohio.
1890. *Fenestella tenax*. Ulrich, Geol. Surv. Ill., vol. 8, p. 546, pl. 51, figs. 2-2e.
Warsaw beds: Monroe County and Warsaw, Illinois.
Chester Group: Chester and Kaskaskia, Ill.; Sloan's Valley, Kentucky.
1894. *Fenestella tenax*. Keyes, Mo. Geol. Surv., vol. 5, p. 24.
Kaskaskia L. S.: Chester, Illinois.

Fenestella triserialis Ulrich.

1890. *Fenestella triserialis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 541, pl. 50, figs. 4, 4a.
Keokuk Group: King's Mountain, Kentucky.

Fenestella trituberculata Prout.

1858. *Fenestella trituberculata*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 228.
Carboniferous L. S.: Organ Mountains, New Mexico.

Fenestella variabilis Prout.

1858. *Fenestella variabilis*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 231.
?Carboniferous: Texas or New Mexico.

Fenestella wortheni. See *Archimedes wortheni*.**Fenestella wortheni** Ulrich.

1890. *Fenestella wortheni*. Ulrich, Geol. Surv. Ill., vol. 8, p. 551, pl. 52, figs. 5, 5a.
Base of Coal Measures: Seville, Illinois.

Fenestella (species undetermined).

1858. *Fenestella*. Schiel, Pac. R. R. Rept., vol. 2, p. 108, pl. 1, fig. 1.
Carboniferous L. S.: Willow Creek.
1868. *Fenestella*. Dawson, Acad. Geol., p. 289.
Carboniferous L. S.: West River, Pictou, Nova Scotia.
1868. *Fenestella*. Dawson, Acad. Geol., p. 289.
Carboniferous L. S.: Stewiacke, Nova Scotia.
1872. *Fenestella* sp. Meek, U. S. Geol. Surv. Nebr., p. 152, pl. 1, figs. 4a, b.
Upper Coal Measures: Bellevue and Plattsmouth, Nebraska.
1876. *Fenestella* — ? —. White, Powell's Rep. Geol. Uinta Mts., p. 89.
Lower Aubrey Group: Near Echo Park, Utah.
1878. *Fenestella* sp. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, pp. 619, 620.
Carboniferous: Feilden Isthmus, latitude 82° 43'.

FENESTRALIA Prout, 1858.**Fenestralia sancti-ludovici** Prout.

1858. *Fenestralia St. Ludovici*. Prout, Trans. St. Louis Acad. Sci., vol. 1 p. 235.
Upper St. Louis L. S.: St. Louis, Missouri.

Fenestralia sancti-ludovici Prout—Continued.

1859. *Fenestralia St. Ludovici*. Prout, Trans. St. Louis Acad. Sci., vol. 1, pl. 15, figs. 1, 1a.
 1890. *Fenestralia sancti-ludovici*. Ulrich, Geol. Surv. Ill., vol. 8, p. 604, pl. 55, fig. 5.
 St. Louis Group and Warsaw beds: St. Louis and Barrett's Station, Missouri; Monroe County, Alton, Columbia, and Warsaw, Illinois.
 1894. *Fenestralia? sancti-ludovici*. Keyes, Mo. Geol. Surv., vol. 5, p. 30.
 St. Louis L. S.: St. Louis, Missouri.

Fenestralia sancti-ludovici var. compacta Ulrich.

1890. *Fenestralia sancti-ludovici* var. *compacta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 605, pl. 59, fig. 1.
 St. Louis Group: Elizabethtown, Kentucky.

FILICITES Schlotheim, 1820.**Filicites gracilis Shumard.**

1855. *Filicites gracilis*. Shumard, Geol. Rep. Mo., p. 208, pl. A, fig. 11.
 Lithographic L. S.: Louisiana and Elk Spring, Pike County; on North River, Marion County, Missouri.

FISTULIPIORA McCoy, 1849.**Fistulipora carbonaria Ulrich.**

1884. *Fistulipora carbonaria*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 45, pl. 3, figs. 1, 1a.
 Upper Coal Measures: Kansas City, Missouri.
 1894. *Fistulipora carbonaria*. Keyes, Mo. Geol. Surv., vol. 5, p. 16.
 Upper Coal Measures: Kansas City, Missouri.

Fistulipora clausa. See Meekopora clausa.**Fistulipora compressa Rominger.**

1866. *Fistulipora compressa*. Rominger, Proc. Acad. Nat. Sci. Phil., p. 123.
 Keokuk L. S.: Lagrange, Missouri.
 1894. *Fistulipora compressa*. Keyes, Mo. Geol. Surv., vol. 5, p. 16.
 Keokuk L. S.: Lagrange and Wayland, Missouri.

Fistulipora excelens Ulrich.

1884. *Fistulipora excelens*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 46, pl. 3, figs. 3–3b.
 Kaskaskia Group: Tateville and Litchfield, Kentucky.

Fistulipora flabellum. See Dichotrypa flabellum.**Fistulipora nodulifera Meek.**

1866. *Stenopora columnaris* (pars). Geintz, Carb. und Dyas in Nebr., p. 66. (Not Schloth., 1813.)
 Carboniferous: Bellevue, Nebraska.
 1872. *Fistulipora nodulifera*. Meek, U. S. Geol. Surv. Nebr., p. 143, pl. 5, figs. 5a–d.
 Upper Coal Measures: Nebraska City, Bennett's Mill, and Wyoming, Nebraska.
 Coal Measures: Iowa and Illinois.
 1894. *Fistulipora nodulifera*. Keyes, Mo. Geol. Surv., vol. 5, pl. 34, fig. 3.
 Upper Coal Measures.
 1897. *Fistulipora nodulifera*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 25.
 Upper Coal Measures: Poteau Mountain, Indian Territory.

***Fistulipora prolifica* Ulrich.**

1884. *Fistulipora prolifica*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 45, pl. 3, figs. 2, 2a.

St. Louis Group: Colesburg, Kentucky.

Fistulipora peculiaris*. See *Actinotrypa peculiaris*.**Fistulipora spergenensis* Rominger.**

1866. *Fistulipora Spergenensis*. Rominger, Proc. Acad. Nat. Sci. Phil., p. 12 2.
Warsaw L. S.: Spergen Hill, Indiana.

Fistulipora trifolia*. See *Prismopora trifolia*.**Fistulipora* (species undetermined.)**

1876. *Fistulipora* —? —. White, Powell's Geol. Rep. Uinta Mts., p. 88.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1888. *Fistulipora* (3) sp. undet. Ulrich, Bull. Den. Univ., vol. 4, p. 92.
Waverly Group: Sciotoville and Richfield, Ohio.

(FLEMINGIA De Koninck, 1881.)

***Flemingia stultus*. See *Pleurotomaria stulta*.**

(FLUSTRA Linnæus, 1745.)

Flustra spatulata* Prout. See *Worthenopora spatulata*.**Flustra tuberculata* Prout. See *Stenopora tuberculata*.**

FORBESIOCRINUS De Koninck and Lehon, 1854.

***Forbesiocrinus agassizi* Hall.**

1858. *Forbesiocrinus agassizi*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 631, fig. 103.
1860. *Forbesiocrinus agassizi*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 65.
Burlington L. S.: Burlington, Iowa.
1861. *Forbesiocrinus Agassizi* var. *giganteus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 131.
Burlington L. S.: Burlington, Iowa.
1868. *Forbesiocrinus Agassizi* var. *giganteus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 495, pl. 18, fig. 3.
Burlington Group: Burlington, Iowa.
1872. *Forbesiocrinus Agassizi*. Hall, Photo. Plates of Crinoids, pl. 7, figs. 1, 2.
1894. *Forbesiocrinus agassizi*. Keyes, Mo. Geol. Surv., vol. 4, p. 224, pl. 30, fig. 3.

Forbesiocrinus agassizi* var. *giganteus*. See *Forbesiocrinus agassizi*.**Forbesiocrinus asteriæformis*. See *Onychocrinus asteriæformis*.*****Forbesiocrinus cestriensis* Hall.**

1860. *Forbesiocrinus cestriensis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 68.
Kaskaskia L. S.: Pope County, Illinois.

Forbesiocrinus communis*. See *Taxocrinus communis*.**Forbesiocrinus elegantulus* Miller.**

1891. *Forbesiocrinus elegantulus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 40, pl. 5, figs. 14, 15.
Keokuk Group: Boonville, Missouri.

Forbesiocrinus giddingei*. See *Taxocrinus giddingei*.**Forbesiocrinus greeni* Miller and Gurley.**

1896. *Forbesiocrinus greeni*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 57, pl. 4, figs. 1, 2.
Keokuk Group: Edwardsville, Indiana.

Forbesiocrinus jerseyensis Miller and Gurley.

1896. *Forbesiocrinus jerseyensis*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 58, pl. 4, figs. 2, 3.

Warsaw Group: Jersey County, Illinois.

Forbesiocrinus juvenis. See *Taxocrinus juvenis*.

Forbesiocrinus kelloggi. See *Taxocrinus kelloggi*.

Forbesiocrinus lobatus var. *tardus*. See *Taxocrinus tardus*.

Forbesiocrinus macadamsi Miller and Gurley.

1896. *Forbesiocrinus macadamsi*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 58, pl. 5, figs. 1, 2.

Keokuk Group: Jersey County, Illinois.

Forbesiocrinus meeki. See *Taxocrinus meeki*.

Forbesiocrinus monroensis. See *Onychocrinus monroensis*.

Forbesiocrinus multibrachiatus. See *Taxocrinus multibrachiatus*.

Forbesiocrinus norwoodi. See *Onychocrinus exculptus*.

Forbesiocrinus parvus Wetherby.

1879. *Forbesiocrinus parvus*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 138, pl. 11, figs. 4a, b.

Kaskaskia Group: Pulaski County, Kentucky.

Forbesiocrinus pratteni. See *Melocrinus pratteni*.

Forbesiocrinus pyriformis Miller and Gurley.

1894. *Forbesiocrinus pyriformis*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 47, pl. 4, fig. 1.

Keokuk Group: Muldrough's Hill, Hardin County, Kentucky.

Forbesiocrinus ramulosus. See *Onychocrinus ramulosus* and *Taxocrinus ramulosus*.

Forbesiocrinus saffordi Hall.

1860. *Forbesiocrinus saffordi*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 87.

Keokuk L. S.: White Creek Springs, Tennessee.

Forbesiocrinus semiovatus. See *Taxocrinus semiovatus*.

Forbesiocrinus shumardianus. See *Taxocrinus shumardianus*.

Forbesiocrinus speciosus Miller and Gurley.

1890. *Forbesiocrinus speciosus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 347, pl. 5, figs. 8, 9.

Keokuk Group: Washington County, Indiana.

Forbesiocrinus spinifer. See *Taxocrinus thiemei*.

Forbesiocrinus spiniger. See *Taxocrinus thiemei*.

Forbesiocrinus tardus. See *Taxocrinus tardus*.

Forbesiocrinus thiemei. See *Taxocrinus thiemei*.

Forbesiocrinus washingtonensis Miller and Gurley.

1896. *Forbesiocrinus washingtonensis*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 54, pl. 3, figs. 32, 33.

Keokuk Group: Washington County, Indiana.

Forbesiocrinus whitfieldi. See *Taxocrinus whitfieldi*.

Forbesiocrinus wortheni Hall.

1858. *Forbesiocrinus wortheni*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 632, pl. 17, fig. b.

Keokuk L. S.: Keokuk, Iowa.

Forbesiocrinus wortheni Hall—Continued.

1860. *Forbesiocrinus wortheni*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 3, fig. 7.
 1873. *Forbesiocrinus Wortheni*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 496, pl. 14, fig. 2; pl. 15, fig. 7.
 Keokuk Group: Keokuk, Iowa; Hamilton, Illinois; Crawfordsville, Indiana.
 1894. *Forbesiocrinus wortheni*. Keyes, Mo. Geol. Surv., vol. 4, p. 224.
 Keokuk L. S.: Keokuk and Bonaparte, Iowa.

FUSULINA Fischer, 1837.***Fusulina cylindrica* Fischer.**

- *1837. *Fusulina cylindrica*. Fischer, Oryct. du Gouv. Moscon, p. 126, pl. 18, figs. 1-5.
 1858. *Fusulina cylindrica*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 260.
 Carboniferous: Valley of the Kansas River, Kansas.
 1859. *Fusulina cylindrica*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 24.
 Coal Measures: Kansas.
 1861. *Fusulina cylindrica*. Newberry, Ives' Colo. Expl. Exped., p. 129.
 Coal Measures: Kansas.
 1864. *Fusulina cylindrica*. Meek and Hayden, Pal. Upper Mo., p. 14, pl. 1, figs. 6a-4.
 Coal Measures: Ohio to Kansas and Southwestern Nebraska, and south to Texas.
 1864. *Fusulina cylindrica*? Meek, Pal. Cal., vol. 1, p. 4, pl. 2, figs. 2, 2a.
 Carboniferous: Bass's Ranch, Shasta County, California.
 1866. *Fusulina cylindrica*. Geinitz, Carb. und Dyas in Nebr., p. 71, tab. 5, fig. 5.
 Plattsmouth, Nebraska.
 1872. *Fusulina cylindrica*. Meek, U. S. Geol. Surv. Nebr., p. 140, pl. 1, fig. 2; pl. 2, fig. 1; pl. 5, figs. 3a, b; pl. 7, figs. 8a, b.
 Upper Coal Measures: 2½ miles west and 1 mile southeast of Nebraska City; Bennett's Mill, Wyoming; Rock Bluff, Plattsmouth, Bellevue, and Omaha City, Nebraska.
 1877. *Fusulina cylindrica*. White, U. S. Geol. Surv. W. 100 Merid., vol. 4, p. 96, pl. 6, figs. 6a, b.
 Carboniferous: Wasatch Range, south of Spanish Fork; U-i-ya-bi Pass, Gosute Range; near Beckwith Spring, Cedar Range; near the mouth of Spanish Fork Canyon; southeast of Mount Nebo, all in Utah.
 1877. *Fusulina Cylindrica*. Whiteaves, Geol. Surv. Canada, Rept. of Prog. 1875-76, p. 97.
 Carboniferous or Permian: Rear of Fort St. James, Stewart's Lake, British Columbia.
 1884. *Fusulina cylindrica*. White, 13th Rep. Geol. Surv. Ind., p. 116, pl. 23, figs. 1-3.
 Coal Measures: Ohio to California; Limestone roof of coal K, Lodi, Fountain County, Indiana.
 1887. *Fusulina cylindrica*. Herrick, Bull. Den. Univ., vol. 2, p. 50, pl. 3, fig. 20.
 Coal Measures: Flint Ridge, Ohio.
 1891. *Fusulina cylindrica*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 245.
 Lower Coal Measures: Des Moines, Iowa.
 1894. *Fusulina cylindrica*. Keyes, Mo. Geol. Surv., vol. 4, p. 102, pl. 12, figs. 1a-c.
 Coal Measures: Kansas City and Lexington, Missouri.

***Fusulina cylindrica* var. *gracilis* Meek.**

1864. *Fusulina gracilis*. Meek, Pal. Cal., vol. 1, p. 4, pl. 2, figs. 1-1c.
 Carboniferous: Bass's Ranch, Shasta County, California.
 1873. *Fusulina gracilis*? Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 560, pl. 24, fig. 7.
 Coal Measures: Springfield, Illinois.
 1874. *Fusulina gracilis*. Meek, Am. Jour. Sci. (3), vol. 7, p. 484.

Fusulina cylindrica var. robusta Meek.

1864. *Fusulina robusta*. Meek, Pal. Cal., vol. 1, p. 3, pl. 2, figs. 3-3c.
Carboniferous: Bass's Ranch, Shasta County, California.

Fusulina cylindrica var. ventricosa Meek and Hayden.

1858. *Fusulina cylindrica var. ventricosa*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 261.
Carboniferous: Juniata and Manhattan, Kansas.
1859. *Fusulina cylindrica var. ventricosa*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 24.
Coal Measures: Manhattan and Juniata, Kansas.
1873. *Fusulina ventricosa*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 560, pl. 24, fig. 8.
Coal Measures: Fulton and Peoria counties, Illinois.
1874. *Fusulina ventricosa*. Meek, Am. Jour. Sic. (3), vol. 7, p. 484.

Fusulina elongata Shumard.

1858. *Fusulina elongata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 297.
Dark and White Permian L. S. and S. S.: Guadalupe Mountains, New Mexico and Texas.
1859. *Fusulina elongata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 388.
White Permian L. S. and underlying S. S.: Guadalupe Mountains, Texas and New Mexico.

Fusulina hyperborea Salter.

1855. *Fusulina Hyperborea*. Salter, Belcher's "Last of the Arctic Voyages," p. 380, pl. 36, figs. 1-3.
Carboniferous: Depot Point, Albert Land.

(FUSUS Bruguiere, 1789.)

Fusus inhabilis. See *Sphærodoma primogenia*.

GASTRIOCERAS Hyatt, 1883.**Gastrioceras branneri Smith.**

1897. *Gastrioceras branneri*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 47, pl. 23, figs. 1-6.
Lower Coal Measures: Pilot Mountain, Carroll County, Arkansas.

Gastrioceras compressum Hyatt.

1891. *Gastrioceras compressum*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 355, figs. 57-59.
Carboniferous: Colorado River, San Saba County, and near Bend, Texas.

Gastrioceras entogonum Gabb.

1861. *Goniatites entogonus*. Gabb, Proc. Acad. Nat. Sci. Phil., p. 372.
Carboniferous L. S.: Lampasas County, Texas.
1893. *Gastrioceras entogonum?* Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 472, pl. 47, figs. 49-51.
Carboniferous: Five miles west of Lampasas, Texas.

Gastrioceras excelsum Meek.

1876. *Goniatites globulosus var. excelsum*. Meek, Bull. U. S. G. and G. Surv. Terr., vol. 1, 2d Ser., p. 445.
Coal Measures: Osage, Kansas.
1897. *Gastrioceras excelsum*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 50, pl. 17, fig. 1.
Lower Coal Measures: Pope County, Arkansas.

Gastrioceras globulosus Meek and Worthen.

1860. *Goniatites globulosus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 471.
Upper Coal Measures: Springfield, Illinois.
1866. *Goniatites globulosus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 390,
pl. 30, figs. 2a-c.
Upper Coal Measures: Springfield, Illinois; eastern Kansas.
1883. *Gastrioceras globulosus*. Hyatt, Proc. Bost. Soc. Nat. Hist., vol. 22, p. 327.
1897. *Gastrioceras globulosum*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 48, pl. 18,
figs. 1-6.
Upper Carboniferous: Scott County, Arkansas.

Gastrioceras kingii Hall and Whitfield.

1877. *Goniatites Kingii*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 279,
pl. 6, figs. 9-14.
Coal Measures: Near Eberhardt Mill, White Pine, Nevada.
1883. *Gastrioceras Kingii*. Hyatt, Proc. Bost. Soc. Nat. Hist., vol. 22, p. 327.

Gastrioceras marianum de Verneuil.

1845. *Goniatites marianus*. Verneuil, Geol. Russia and the Ural Mts., vol. 2, p. 369,
pl. 27, figs. 2a-c.
Mountain Limestone.
1897. *Gastrioceras marianum*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 50, pl. 18,
figs. 1-5.
Upper Coal Measures: Scott County, Arkansas.

Gastrioceras (species undetermined).

1897. *Gastrioceras* sp. indet. Smith, Proc. Am. Phil. Soc., vol. 35, p. 52, pl. 20, fig. 1.
Upper Coal Measures: Scott County, Arkansas.

GENENTOMUM Scudder, 1885.**Genentomum validum** Scudder.

1885. *Genentomum validum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 329,
pl. 30, figs. 2, 3.
Carboniferous: Mazon Creek, Illinois.
1890. *Genentomum validum*. Scudder, Foss. Insc. N. A., vol. 1, p. 293, figs. 2, 3.
Carboniferous: Mazon Creek, Illinois.

GENOPTERYX Scudder, 1884.**Genopteryx constricta** Scudder.

1885. *Genopteryx constricta*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 327,
pl. 29, fig. 11.
Carboniferous: Mazon Creek, Illinois.
1890. *Genopteryx constricta*. Scudder, Foss. Insc. N. A., vol. 1, p. 291, pl. 15, fig. 11.
Carboniferous: Mazon Creek, Illinois.

GERABLATTINA Scudder, 1879.**Gerablattina abdicata** Scudder.

1895. *Gerablattina abdicata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 118, pl. 10,
fig. 6.
Lower Permian: Cassville, West Virginia.

Gerablattina apicalis Scudder.

1895. *Gerablattina apicalis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 114, pl. 9,
fig. 18.
Lower Coal Measures: Wills Creek, Richmond, Ohio.

Gerablattina balteata Scudder. See *Etoablattina balteata*.

Gerablattina cassvici Scudder.

1895. *Gerablattina cassvici*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 117, pl. 10, figs. 2, 3.

Lower Permian: Cassville, West Virginia.

Gerablattina concinna Scudder.

1895. *Gerablattina concinna*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 119, pl. 10, figs. 4, 5.

Lower Permian: Cassville, West Virginia.

Gerablattina deducta Scudder.

1895. *Gerablattina deducta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 123, pl. 10, fig. 15.

Lower Permian: Cassville, West Virginia.

Gerablattina diversinervis Scudder.

1895. *Gerablattina diversinervis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 115, pl. 9, fig. 15.

Lower Permian: Cassville, West Virginia.

Gerablattina eversa Scudder.

1895. *Gerablattina eversa*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 122, pl. 10, fig. 14.

Lower Permian: Cassville, West Virginia.

Gerablattina fascigera Scudder.

1878. *Blattina fascigera*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 15, p. 239.

Carboniferous: Pittston, Pennsylvania.

1879. *Gerablattina fascigera*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 113, pl. 6, figs. 1, 2.

Lower Carboniferous: Pittston, Pennsylvania.

1890. *Gerablattina fascigera*. Scudder, Foss. Insc. N. A., vol. 1, p. 133, pl. 6, figs. 1, 2.

Lower Carboniferous: Pittston, Pennsylvania.

1895. *Gerablattina fascigera*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 128.

Millstone Grit: Campbell's Ledge, near Pittston, Pennsylvania.

Gerablattina fraterna Scudder.

1893. *Gerablattina fraterna*. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 19, pl. 2, figs. d, e.

Carboniferous: Silver Spring, East Providence, Rhode Island.

1895. *Gerablattina fraterna*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 124, pl. 10, fig. 16.

Lower (?) Coal Measures: Silver Spring, East Providence, Rhode Island.

Gerablattina inculta Scudder.

1895. *Gerablattina inculta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 113, pl. 9, fig. 16.

Lower Permian: Cassville, West Virginia.

Gerablattina lata Scudder.

1895. *Gerablattina lata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 125, pl. 11, fig. 2.

Lower Permian: Cassville, West Virginia.

Gerablattina minima Scudder.

1895. *Gerablattina minima*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 127, pl. 11, fig. 5.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

Gerablattina ovata Scudder.

1895. *Gerablattina ovata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 126, pl. 11, fig. 4.

Lower Permian: Cassville, West Virginia.

Gerablattina perita Scudder.

1895. *Gerablattina perita*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 114, pl. 9, fig. 17.

Lower Permian: Cassville, West Virginia.

Gerablattina permacra Scudder.

1895. *Gerablattina permacra*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 121, pl. 10, fig. 13.

Lower Permian: Cassville, West Virginia.

Gerablattina permanenta Scudder.

1895. *Gerablattina permanenta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 121, pl. 10, fig. 12.

Lower Permian: Cassville, West Virginia.

Gerablattina radiata Scudder.

1895. *Gerablattina radiata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 124, pl. 11, fig. 1.

Lower Permian: Cassville, West Virginia.

Gerablattina richmondiana Scudder.

1895. *Gerablattina richmondiana*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 116, pl. 10, fig. 1.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

Gerablattina rotundata Scudder.

1895. *Gerablattina rotundata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 126, pl. 11, fig. 3.

Lower Permian: Cassville, West Virginia.

Gerablattina scapularis Scudder.

1893. *Gerablattina scapularis*. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 19, pl. 2, fig. 1.

Carboniferous: Pawtucket, Rhode Island.

1895. *Gerablattina scapularis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 124, pl. 10, fig. 7.

Lower (?) Coal Measures: Pawtucket, Rhode Island.

Gerablattina uniformis Scudder.

1895. *Gerablattina uniformis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 120, pl. 10, figs. 8-11.

Lower Permian: Cassville, West Virginia.

GERALINURA Scudder, 1884.**Geralinura carbonaria** Scudder.

1884. *Geralinura carbonaria*. Scudder, Proc. Am. Acad. Arts and Sci., vol. 20, p. 19. Carboniferous: Mazon Creek, Illinois.

1890. *Geralinura carbonaria*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 455, pl. 39, figs. 1, 3, 4.

Carboniferous: Mazon Creek, Illinois.

1890. *Geralinura carbonaria*. Scudder, Foss. Insc. N. A., vol. 1, p. 431, pl. 31, figs. 1, 3, 4.

Carboniferous: Mazon Creek, Illinois.

GERAPHRYNUS Scudder, 1884.**Geraphrynus carbonarius** Scudder.

1884. *Geraphrynus carbonarius*. Scudder, Proc. Am. Acad. Arts and Sci., vol. 20, p. 16.

Carboniferous: Mazon Creek, Illinois.

Geraphrynus carbonarius Scudder—Continued.

1890. *Geraphrynus carbonarius*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 446, pl. 40, figs. 1, 9, 10, 12.
Carboniferous: Mazon Creek, Illinois.
1890. *Geraphrynus carbonarius*. Scudder, Foss. Insc. N. A., vol. 1, p. 422, pl. 32, figs. 1, 9, 10, 12.
Carboniferous: Mazon Creek, Illinois.

GERAPOMPUS Scudder, 1885.**Gerapompus blattinoides** Scudder.

1885. *Gerapompus blattinoides*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 326, pl. 29, fig. 1.
Carboniferous: Mazon Creek, Illinois.
1890. *Gerapompus blattinoides*. Scudder, Foss. Insc. N. A., vol. 1, p. 290, pl. 15, fig. 1.
Carboniferous: Mazon Creek, Illinois.

Gerapompus extensus Scudder.

1885. *Gerapompus extensus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 326, pl. 29, figs. 5-8.
Carboniferous: Mazon Creek, Illinois.
1890. *Gerapompus extensus*. Scudder, Foss. Insc. N. A., vol. 1, p. 290, pl. 15, figs. 5, 8.
Carboniferous: Mazon Creek, Illinois.

GERARUS Scudder, 1868.**Gerarus danae** Scudder.

1868. *Miamia Danae*. Scudder, Geol. Surv. Ill., vol. 3, p. 566, fig. 1.
Carboniferous: Mazon Creek, Grundy County, Illinois.
1885. *Gerarus Danae*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 345, pl. 31, fig. 5.
Carboniferous: Mazon Creek, Illinois.
1890. *Gerarus Danae*. Scudder, Foss. Insc. N. A., vol. 1, p. 309, pl. 17, fig. 5.
Carboniferous: Mazon Creek, Illinois.

Gerarus mazonus Scudder.

1885. *Gerarus mazonus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 344, pl. 32, fig. 7.
Carboniferous: Mazon Creek, Illinois.
1890. *Gerarus mazonus*. Scudder, Foss. Insc. N. A., vol. 1, p. 308, pl. 18, fig. 7.
Carboniferous: Mazon Creek, Illinois.

Gerarus vetus Scudder.

1885. *Gerarus vetus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 344, pl. 31, fig. 6.
Carboniferous: Mazon Creek, Illinois.
1890. *Gerarus vetus*. Scudder, Foss. Insc. N. A., vol. 1, p. 308, pl. 17, fig. 6.
Carboniferous: Mazon Creek, Illinois.

GERATARBUS Scudder, 1890.**Geratarbus lacoei** Scudder.

1890. *Geratarbus lacoei*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 448, pl. 39, fig. 5.
Carboniferous: Mazon Creek, Illinois.
1890. *Geratarbus lacoei*. Scudder, Foss. Insc. N. A., vol. 1, p. 424, pl. 32, fig. 11.
Carboniferous: Mazon Creek, Illinois.

***Geratarbus scabrum* Scudder.**

1890. *Geratarbus scabrum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 448, pl. 39, fig. 5.

Carboniferous: Mazon Creek, Illinois.

1890. *Geratarbus scabrum*. Scudder, Foss. Insc. N. A., vol. 1, p. 424, pl. 31, fig. 5.

Carboniferous: Mazon Creek, Illinois.

(GERVILLIA De France, 1820.)

Gervillia auricula. See *Monopteria longispina*.

Gervillia longa. See *Avicula longa*.

Gervillia longispina. See *Monopteria longispina*.

Gervillia ohioense. See *Avicula ohioense*.

Gervillia strigosa. See *Pterinea strigosa*.

Gervillia sulcata. See *Avicula sulcata*.

GILBERTSOCRINUS Phillips, 1836.

Gilbertsocrinus dispansus. See *Gilbertsocrinus lyonanus*.

***Gilbertsocrinus faberi* Miller and Gurley.**

1896. *Goniasteroidocrinus faberi*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 84, pl. 5, figs. 2, 3.

Keokuk Group: Joplin, Missouri.

***Gilbertsocrinus fuscillus* Meek and Worthen.**

1860. *Trematocrinus fuscillus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 383.

Burlington L. S.: Burlington, Iowa.

1866. *Gilbertsocrinus fuscillus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 222, pl. 15, fig. 5.

Burlington L. S.

1897. *Gilbertsocrinus fuscillus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 245, pl. 17, figs. 2a-d.

Lower Burlington L. S.: Burlington, Iowa.

***Gilbertsocrinus lyonanus* Miller and Gurley.**

1894. *Goniasteroidocrinus lyonanus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 55, pl. 4, fig. 4.

Keokuk Group: Indian Creek, near Crawfordsville, Indiana.

1897. *Gilbertsocrinus dispansus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 240, pl. 15, figs. 2a-d.

Keokuk Group: Indian Creek, Montgomery County, Indiana.

***Gilbertsocrinus obovatus* Meek and Worthen.**

1869. *Goniasteroidocrinus obovatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 76.

Upper Burlington L. S.: Burlington, Iowa.

1873. *Goniasteroidocrinus obovatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 391, pl. 4, fig. 6.

Burlington L. S.: Burlington, Iowa.

1897. *Gilbertsocrinus obovatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 241, pl. 17, figs. 4a, b.

Upper Burlington L. S.: Burlington and Pleasant Grove, Iowa.

Gilbertsocrinus reticulatus Hall.

1861. *Trematocrinus reticulatus*. Hall, Desc. New Spec. Crin., p. 9.
Burlington L. S.
1861. *Trematocrinus reticulatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 325.
Burlington L. S.: Burlington, Iowa.
1872. *Gilbertsocrinus (Trematocrinus) reticulatus*. Hall, Photo. Plates of Crinoids,
pl. 6, fig. 12.
1897. *Gilbertsocrinus reticulatus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 244, pl. 17, figs. 1a, b.
Lower Burlington L. S.: Burlington, Iowa; Sedalia, Missouri.

Gilbertsocrinus robustus Hall. See Gilbertsocrinus tuberosus.**Gilbertsocrinus tenuiradiatus Meek and Worthen.**

1869. *Goniasteroidocrinus tenuiradiatus*. Meek and Worthen, Proc. Acad. Nat.
Sci. Phil., p. 75.
Lower Burlington L. S.: Burlington, Iowa.
1873. *Goniasteroidocrinus tenuiradiatus*. Meek and Worthen, Geol. Surv. Ill.,
vol. 5, p. 389, pl. 11, fig. 1.
Burlington L. S.: Burlington, Iowa.
1897. *Gilbertsocrinus tenuiradiatus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 246, pl. 17, fig. 3.
Lower Burlington L. S.: Burlington, Iowa.

Gilbertsocrinus tuberculosus Hall.

1860. *Trematocrinus tuberculosus*. Hall Supp., vol. 1, pt. 2, Geol. Rep. Ia., p. 75.
Burlington L. S.: Burlington, Iowa.
1860. *Trematocrinus papillatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 76.
Burlington L. S.: Burlington, Iowa.
1878. *Ollacrinus tuberculosus*. Wachsmuth and Springer, Proc. Acad. Nat. Sci.
Phil., p. 263.
1893. *Ollacrinus papillatus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 36,
pl. 3, fig. 23.
Burlington L. S.: Burlington, Iowa.
1897. *Gilbertsocrinus tuberculosus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 243, pl. 17, figs. 5a-c.
Upper Burlington L. S.: Burlington, Iowa.

Gilbertsocrinus tuberosus Lyon and Casseday.

1859. *Goniasteroidocrinus tuberosus*. Lyon and Casseday, Am. Jour. Sci. (2), vol.
28, p. 233.
Subcarboniferous Group (Knobstone): Clear Creek, Hardin County, Ken-
tucky; Washington and Montgomery counties, Indiana.
1860. *Trematocrinus robustus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 77.
Keokuk L. S.: Keokuk, Iowa.
1872. *Gilbertsocrinus (Trematocrinus) robustus*. Hall, Photo. Plates of Crinoids,
pl. 6, fig. 14.
1891. *Goniasteroidocrinus tuberosus*. Miller, Adv. Sheets, 17th Rep. Geol. Ind.,
p. 51, pl. 9, fig. 11.
1892. *Goniasteroidocrinus tuberosus*. Miller, 17th Rep. Geol. Surv. Ind., p. 661,
pl. 9, fig. 11.
1897. *Gilbertsocrinus tuberosus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 239, pl. 15, figs. 1a, b; pl. 16, figs. 1-6; pl. 17, fig. 6.
Keokuk Group: Crawfordsville, Indiana; Hardin County, Kentucky;
Keokuk, Iowa.

Gilbertsocrinus typus Hall.

1860. *Trematocrinus typus*. Hall, Supp. vol. 1, p. 2, Geol. Rep. Ia., p. 73.
Burlington L. S.: Burlington, Iowa.

Gilbertocrinus typus Hall—Continued.

1872. *Gilbertocrinus* (*Trematocrinus*) *typus*. Hall, Photo. Plates of Crinoids, pl. 6, fig. 13.
 1878. *Ollacrinus typus*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 262.
 1894. *Gilbertocrinus typus*. Keyes, Mo. Geol. Surv., vol. 4, p. 164.
 Upper Burlington L. S.: Marion County, Missouri; Burlington, Iowa.
 1897. *Gilbertocrinus typus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 242, pl. 14, figs. 1-3; pl. 17, figs. 7a, b.
 Upper Burlington L. S.: Burlington and Pleasant Grove, Iowa.

(GLAUCONOME Goldfuss, 1826.)

Glaucanome nereidis White. See *Pinnatopora nereidis*.*Glaucanome trilineata* Meek. See *Pinnatopora trilineata*.*Glaucanome whitii* Foerste. See *Pinnatopora whitii*.**GLOSSINA** Phillips, 1848.**Glossina flabellula** Hall and Clarke.

1892. *Lingula* (*Glossina*) *flabellula*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 172, pl. 1, figs. 33, 34.
 Waverly Group: Sciotoville, Ohio.
 Berea Grit: Berea, Ohio.
 1897. *Lingula* (*Glossina*) *flabellula*. Hall, 14th Ann. Rep. N. Y. State Geol., p. 326, pl. 1, figs. 5, 6.
 Waverly Group: Sciotoville and Berea, Ohio.

Glossina nebraskensis Meek.

1872. *Lingula Scotica* var. *Nebrascensis*. Meek, U. S. Geol. Surv. Nebr., p. 158, pl. 8, figs. 3a, b.
 Upper Coal Measures: Nebraska City, Nebraska.

Glossina sedaliensis Miller.

1892. *Lingula sedaliensis*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 54, pl. 9, fig. 2.
 Chouteau L. S.: Sedalia, Missouri.
 1894. *Lingula sedaliensis*. Miller, 18th Rep. Geol. Surv. Ind., p. 308, pl. 9, fig. 2.
 Chouteau L. S.: Sedalia, Missouri.

Glossina waverlyensis Herrick.

1875. *Lingula Scotica* ? Meek, Pal. Ohio, vol. 2, p. 276, pl. 14, fig. 9. (Not *L. scotica* Davidson.)
 Berea Grit: Berea, Ohio.
 1887. *Lingula scotica* (var. ?) Herrick, Bull. Den. Univ., vol. 2, p. 144, pl. 14, fig. 15.
 Coal Measures: Flint Ridge, Ohio.
 1888. *Lingula waverlyensis*. Herrick, Bull. Den. Univ., vol. 4, p. 18, pl. 3, fig. 1.
 Waverly Group: Newark, Ohio.
 1892. *Lingula Waverlyensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 4K, fig. 7.
 Waverly S. S.: Oil City, Pennsylvania.
 1895. *Lingula* (*scotica* var.) *waverlyensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, fig. 1.
 (Waverly) Shale above Conglomerate II: Newark, Ohio.

GLOSSITES Hall, 1885.

Glossites amygdalinus Winchell.

1863. *Sanguinolites amygdalinus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 13.
Yellow S. S.: Burlington, Iowa.
1885. *Glossites amygdalinus*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 501, pl. 40,
figs. 13, 14.
Yellow S. S.: Burlington, Iowa.
1888. *Sanguinolites (Glossites) amygdalinus?* Herrick, Bull. Den. Univ., vol. 3,
p. 69.
Waverly Group: Licking County, Ohio.

GLYPHIOCERAS Hyatt, 1883.

Glyphioceras cumminsi Hyatt.

1893. *Glyphioceras cumminsi*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 467,
pl. 47, figs. 33-43.
Carboniferous: 5 miles west of Lampasas, Texas.

Glyphioceras incisum Hyatt.

1893. *Glyphioceras incisum*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 471, pl. 47,
figs. 44-48.
Carboniferous: Near Richland Springs, San Saba County, Texas.

Glyphioceras kentuckiense Miller.

1889. *Goniatites kentuckiensis*. Miller, N. A. Geol. and Pal., p. 439, fig. 740.
St. Louis Group: Crab Orchard, Kentucky.
1893. *Glyphioceras Kentuckiense*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 470.
1896. *Goniatites kentuckiensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat.
Hist., p. 40, pl. 5, fig. 1.
St. Louis Group: Crab Orchard, Kentucky.

Glyphioceras sphaericus Martin.

1897. *Glyphioceras sphaericus*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 271, pl. 20,
figs. 1, 2.
Batesville S. S.: Batesville, Arkansas.

GLYPTOPORA Ulrich, 1888.

Glyptopora elegans Prout.

1860. *Coscinitium elegans*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 572.
Warsaw L. S.: Warsaw, Illinois.
1866. *Coscinitium elegans*. Prout, Geol. Surv. Ill., vol. 2, p. 413, pl. 22, fig. 2.
St. Louis Group: Warsaw, Illinois.
1890. *Glyptopora elegans*. Ulrich, Geol. Surv. Ill., vol. 8, p. 518, pl. 78, figs. 10-10e.
Warsaw beds: Warsaw, Illinois.
1894. *Glyptopora elegans*. Keyes, Mo. Geol. Surv., vol. 5, p. 21.
Keokuk L. S.: Warsaw, Illinois.

Glyptopora keyserlingi Prout.

1868. *Coscinitium Keyserlingi*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 269.
Archimedes L. S.: Warsaw, Illinois.
1869. *Coscinitium Keyserlingi*. Prout, Trans. St. Louis Acad. Sci., vol. 1, pl. 15, figs.
4, 4a.
1860. *Coscinitium Wortheni*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 571.
Keokuk L. S.: Warsaw, Illinois.
1866. *Coscinitium Wortheni*. Prout, Geol. Surv. Ill., vol. 2, p. 412, pl. 22, fig. 1.
Keokuk Group: Near Warsaw, Illinois.

Glyptopora keyserlingi Prout—Continued.

1890. *Glyptopora keyserlingi*. Ulrich, Geol. Surv. Ill., vol. 8, p. 517, pl. 78, figs. 4–4b.
Keokuk Group: Warsaw and Nauvoo, Illinois; Keokuk and Bentonsport, Iowa.
1894. *Glyptopora keyserlingi*. Keyes, Mo. Geol. Surv., vol. 5, p. 22.
Keokuk L. S.: Keokuk, Iowa.

Glyptopora megastoma Ulrich.

1888. *Glyptopora megastoma*. Ulrich, Bull. Den. Univ., vol. 4, p. 83.
Waverly Group: Sciotoville, Ohio.
Keokuk Group: Illinois and Iowa.
1890. *Glyptopora megastoma*. Ulrich, Geol. Surv. Ill., vol. 8, p. 518, pl. 78, figs. 5, 5a.
Keokuk Group: Warsaw and Nauvoo, Illinois; Keokuk and Bentonsport, Iowa.
1894. *Glyptopora megastoma*. Keyes, Mo. Geol. Surv., vol. 5, p. 21.
Keokuk L. S.: Keokuk and Bentonsport, Iowa.

Glyptopora michelinia Prout.

1860. *Coscinium Michelinia*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 573.
Warsaw L. S.: Warsaw, Illinois.
1866. *Coscinium Michelinia*. Prout, Geol. Surv. Ill., vol. 2, p. 414, pl. 22, fig. 4.
St. Louis Group: Warsaw, Illinois.
1890. *Glyptopora michelinia*. Ulrich, Geol. Surv. Ill., vol. 8, p. 515, pl. 78, figs. 8–8b.
Warsaw beds: Warsaw, Illinois; Barrett's Station, Missouri.
1894. *Glyptopora michelinia*. Keyes, Mo. Geol. Surv., vol. 5, p. 22.
St. Louis L. S.: Barrett's Station, Missouri.

Glyptopora pinnata Ulrich.

1890. *Glyptopora pinnata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 516, pl. 78, fig. 2.
Burlington L. S.: Sagetown, Henderson County, Illinois.

Glyptopora plumosa Prout.

1860. *Coscinium plumosum*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 572.
Warsaw L. S.: Warsaw, Illinois, and Barrett's Station, St. Louis County, Missouri.
1866. *Coscinium plumosum*. Prout, Geol. Surv. Ill., vol. 2, p. 414, pl. 22, figs. 3, 3a.
St. Louis Group: Warsaw, Ill.; Barrett's Station, Missouri.
1890. *Glyptopora plumosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 512, pl. 78, fig. 3–3c.
Warsaw beds: Warsaw, Illinois; Barrett's Station, Missouri.
1894. *Glyptopora plumosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 20, pl. 33, fig. 5.
St. Louis L. S.: Barrett Station, Missouri.

Glyptopora punctipora Ulrich.

1890. *Glyptopora punctipora*. Ulrich, Geol. Surv. Ill., vol. 8, p. 519, pl. 78, figs. 9, 9a.
Chester Group: Monroe County, Illinois.

Glyptopora sagenella Prout.

1860. *Coscinium sagenella*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 573.
Warsaw L. S.: Warsaw, Illinois.
1866. *Coscinium sagenella*. Prout, Geol. Surv. Ill., vol. 2, p. 415, pl. 22, fig. 5.
St. Louis Group: Warsaw, Illinois.
1890. *Glyptopora sagenella*. Ulrich, Geol. Surv. Ill., vol. 8, p. 513, pl. 78, figs. 6, 6a.
Keokuk Group: Bentonsport, Iowa.
Warsaw beds: Warsaw, Illinois.
1894. *Glyptopora sagenella*. Keyes, Mo. Geol. Surv., vol. 5, p. 21.
Keokuk L. S.: Bentonsport, Iowa; Warsaw Illinois.

Glyptopora sagenella var. *caliculosa* Ulrich.

1890. *Glyptopora sagenella* var. *caliculosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 514.
Warsaw beds: Warsaw, Illinois.

Glyptopora sagenella var. *lata* Ulrich.

1890. *Glyptopora sagenella* var. *lata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 515, pl. 78, fig. 4.

Warsaw beds: Warsaw, Illinois.

GOMPHOCERAS Sowerby, 1839.**Gomphoceras clarki** Miller.

1891. *Gomphoceras clarki*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 88, pl. 19, fig. 1.

St. Louis Group: Corydon, Indiana.

1892. *Gomphoceras clarki*. Miller, 17th Rep. Geol. Surv. Ind., p. 698, pl. 19, fig. 1.

St. Louis Group: Corydon, Indiana.

Gomphoceras potens Hall.

1879. *Gomphoceras potens*. Hall, Pal. N. Y., vol. 5, pt. 2, p. 351.

Waverly Group: Medina, Ohio.

1886. *Gomphoceras potens*. Hall, 5th Ann. Rep. N. Y. State Geol., pl. (122) 7, fig. 8.

Waverly Group: Medina, Medina County, Ohio.

1888. *Gomphoceras potens*. Beecher, Pal. N. Y., vol. 5, pt. 2, Supp. pl. 122, fig. 8.

Waverly Group: Medina, Medina County, Ohio.

(GONIASTEROIDOCRINUS Lyon and Casseday, 1859.)

Goniasteroidocrinus faberi. See *Gilbertsocrinus faberi*.

Goniasteroidocrinus lyonanus. See *Gilbertsocrinus lyonanus*.

Goniasteroidocrinus obovatus. See *Gilbertsocrinus obovatus*.

Goniasteroidocrinus tenuiradiatus. See *Gilbertsocrinus tenuiradiatus*.

Goniasteroidocrinus tuberosus. See *Gilbertsocrinus tuberosus*.

GONIATITES De Haan, 1825.**Goniatites allei** Winchell.

1862. *Goniatites Allei*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 363.

Marshall S. S.: Marshall and Jonesville, Michigan.

1865. *Goniatites Allei*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 133.

Marshall Group: Hillsdale, Michigan.

Goniatites andrewsi Winchell.

1870. *Goniatites Andrewsii*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 259.

Waverly Group: Newark, Ohio.

Goniatites baylorensis White.

1891. *Goniatites baylorensis*. White, Bull. U. S. Geol. Surv., No. 77, p. 19, pl. 2, figs. 1-3.

Permian: Military Crossing of the Big Wichita, Baylor County, Texas.

Goniatites bollicosus Morton.

1836. *Ammonites bellicosus*. Morton, Am. Jour. Sci. (1), vol. 29, p. 150, pl. 3, fig. 8.

Coal Measures: Ohio Valley.

Goniatites blairi Miller and Gurley.

1896. *Goniatites blairi*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 35, pl. 4, figs. 4, 5.

Chouteau L. S: Six miles from Sedalia, Missouri.

Goniatites brownensis Miller.

1891. *Goniatites brownensis*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 90, pl. 18, figs. 3, 4.

Waverly or Knobstone Group: Brown County, Indiana.

1892. *Goniatites brownensis*. Miller, 17th Rep. Geol. Surv. Ind., p. 700, pl. 18, figs. 3, 4.

Waverly or Knobstone Group: Brown County, Indiana.

Goniatites choctawensis Shumard.

1863. *Goniatites Choctawensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 2, p. 109. Coal Measures: Choctaw Nation.

Goniatites colubrellus Morton.

1836. *Ammonites colubrellus*. Morton, Am. Jour. Sci. (1), vol. 29, p. 154, pl. 28, figs. 49, 51.

Coal Measures: Ohio Valley.

Goniatites compactus Meek and Worthen.

1865. *Goniatites compactus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 154. Coal Measures: Macoupin County, Illinois.

1873. *Goniatites compactus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 611, pl. 31, fig. 2.

Coal Measures: Menard County, Illinois.

Goniatites elkhornensis Miller and Gurley.

1896. *Goniatites elkhornensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 37, pl. 4, figs. 9-11.

Coal Measures: Elkhorn Creek, Kentucky.

Goniatites entogonus. See *Gastrioceras entogonus*.**Goniatites fultonensis** Miller and Gurley.

1896. *Goniatites fultonensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 39, pl. 4, figs. 15-17.

Coal Measures: Fulton County, Illinois.

Goniatites globulosus. See *Gastrioceras globulosum*.**Goniatites globulosus** var. *excelsus*. See *Gastrioceras excelsum*.**Goniatites goniolobus** Meek.

1877. *Goniatites goniolobus*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 98, pl. 9, figs. 5-5b.

Carboniferous: New Mexico.

Goniatites gorbyi Miller.

1891. *Goniatites gorbyi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 90, pl. 15, fig. 1.

Chouteau L. S.: Pin Hook Bridge, Pettis County, Missouri.

1892. *Goniatites gorbyi*. Miller, 17th Rep. Geol. Surv. Ind., p. 700, pl. 15, fig. 1.

Chouteau L. S.: Pin Hook Bridge, Pettis County, Missouri.

1894. *Goniatites gorbyi*. Keyes, Mo. Geol. Surv., vol. 5, p. 220.

Chouteau L. S.: Sedalia, Missouri.

Goniatites greencastlensis Miller and Gurley.

1896. *Goniatites greencastlensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 44, pl. 5, figs. 12-14.

St. Louis Group: Greencastle, Indiana.

Goniatites greenii Miller.

1892. *Goniatites greenii*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 76, pl. 10, figs. 5, 6.

Knobstone Group: Near New Albany, Indiana.

1894. *Goniatites greenii*. Miller, 18th Rep. Geol. Surv. Ind., p. 330, pl. 10, figs. 5, 6.

Knobstone Group: Near New Albany, Indiana.

Goniatites hathawayanus McChesney.

1860. *Goniatites hathawayana*. McChesney, Desc. New Pal. Foss., p. 66.

Coal Measures: Lasalle, Illinois.

1865. *Goniatites hathawayana*. McChesney, Ill. New Spec. Foss., pl. 3, fig. 3.

1868. *Goniatites Hathawayanus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 53, pl. 3, fig. 3.

Coal Measures: Lasalle, Illinois.

Goniatites hildrethi Morton.

1836. *Ammonites Hildrethi*. Morton, Am. Jour. Sci. (1), vol. 29, p. 149, pl. 1, fig. 24; pl. 28, figs. 48, 50, 53.

Goniatites holmesii Swallow.

1860. *Goniatites (?) Holmesii*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 659.

Chemung: Cooper County, Missouri.

Goniatites houghtoni Winchell.

1862. *Goniatites Houghtoni*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 363.

Marshall S. S.: Marshall, Michigan.

Goniatites hyas. See *Goniatites lyoni*.**Goniatites illinoisensis** Miller and Gurley.

1896. *Goniatites illinoisensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 42, pl. 5, figs. 6-8.

Coal Measures: Montgomery County, Illinois.

Goniatites indianensis Miller.

1891. *Goniatites indianensis*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 90, pl. 19, figs. 2, 3.

Knobstone or Waverly Group: Clark County, Ind.

1892. *Goniatites indianensis*. Miller, 17th Rep. Geol. Surv. Ind., p. 700, pl. 19, figs. 2, 3.

Knobstone or Waverly Group: Clark County, Indiana.

Goniatites iowensis. See *Paralegoceras iowensis*.**Goniatites ixion**. See *Brancoceras ixion*.**Goniatites jessiae** Miller and Gurley.

1896. *Goniatites jessiae*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 46, pl. 5, figs. 18-20.

Chouteau L. S.: Near Sedalia, Missouri.

Goniatites kansasensis Miller and Gurley.

1896. *Goniatites kansasensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 43, pl. 5, figs. 9-11.

Upper Coal Measures: Kansas City, Missouri.

Goniatites kentuckiensis. See *Glyphioceras kentuckiensis*.**Goniatites kingii**. See *Gastrioceras kingii*.**Goniatites leviculus** Miller and Faber.

1892. *Goniatites leviculus*. Miller and Faber, Jour. Cinn. Soc. Nat. Hist., vol. 14, p. 167, pl. 6, figs. 10, 11.

St. Louis Group: Crab Orchard, Kentucky.

Goniatites limatus Miller and Faber.

1892. *Goniatites limatus*. Miller and Faber, Jour. Cinn. Soc. Nat. Hist., vol. 14, p. 166, pl. 6, figs. 8, 9.

St. Louis Group: Crab Orchard, Kentucky.

Goniatites louisianensis Rowley.

1895. *Goniatites louisianensis*. Rowley, Am. Geol., vol. 16, p. 221, figs. 15-18.

Louisiana L. S.: Louisiana, Missouri.

Goniatites lunatus Miller and Gurley.

1896. *Goniatites lunatus*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 41, pl. 5, figs. 2-5.

Coal Measures: Elkhorn Creek, Kentucky.

Goniatites lyoni Meek and Worthen.

1860. *Goniatites Lyoni*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 471.
Goniatite bed: Rockford, Indiana.
1860. *Goniatites hyas*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 102, figs. 17, 18.
Goniatite L. S.: Rockford, Indiana.
1866. *Goniatites Lyoni*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 165, pl. 14, figs. 11a-c.
Goniatite bed: Rockford, Indiana.
1879. *Goniatites Lyoni*. Hall, Pal. N. Y., vol. 5, pt. 2, p. 476, pl. 72, fig. 12; pl. 73, figs. 9-11; pl. 74, fig. 7.
Goniatite L. S.: Rockford, Indiana.
1888. *Goniatites lyoni*. Herrick, Bull. Den. Univ., vol. 3, p. 92.
Waverly Group: Licking County, Ohio.
1888. *Goniatites lyoni*. Herrick, Bull. Den. Univ., vol. 4, pl. 7, fig. 2.
Waverly Group: Ohio.
1895. *Goniatites lyoni*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 18, fig. 2.
Kinderhook Freestone: Granville, Ohio.

Goniatites marshallensis Winchell.

1862. *Goniatites Marshallensis*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 362.
Marshall S. S.: Marshall, Moscow, and Hardwood Point, Michigan.
1865. *Goniatites Marshallensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 133.
Marshall Group: Napoleon Cut, Jackson County, Michigan; Weymouth, Medina County, Ohio.
1870. *Goniatites Marshallensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 258.
Waverly Group: Newark, Ohio.

Goniatites minimus Shumard.

1858. *Goniatites minimus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 200.
Middle Coal Measures: Above Dover Landing, Missouri.
1894. *Goniatites minimus*. Keyes, Mo. Geol. Surv., vol. 5, p. 221.
Upper Coal Measures: Dover Landing and Kansas City, Missouri.

Goniatites missouriensis Miller and Faber.

1892. *Goniatites missouriensis*. Miller and Faber, Jour. Cinn. Soc. Nat. Hist., vol. 14, p. 164, pl. 6, fig. 1.
Upper Coal Measures: Near Kansas City, Missouri.

Goniatites monroensis Worthen.

1890. *Goniatites monroensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 150, pl. 26, fig. 5.
St. Louis L. S.: Waterloo, Monroe County, Illinois.

Goniatites montgomeryensis Miller and Gurley.

1896. *Goniatites montgomeryensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 38, pl. 4, figs. 12-14.
Coal Measures: Montgomery County, Illinois.

Goniatites morganensis Swallow.

1860. *Goniatites Morganensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 659.
Chouteau L. S.: Missouri.

Goniatites noliensis Cox.

1857. *Goniatites noliensis*. Cox, Geol. Surv. Ky., vol. 3, p. 574, pl. 10, figs. 1-1b.
Coal Measures: Nolin Iron Works, Edmonson County, Kentucky.
1891. *Goniatites nolenensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 284.
Lower Coal Measures: Des Moines, Iowa.

Goniatites occidentalis Miller and Faber.

1892. *Goniatites occidentalis*. Miller and Faber, Jour. Cinn. Soc. Nat. Hist., vol. 14, p. 166, pl. 6, figs. 6, 7.

Coal Measures: Elkhorn Creek, Kentucky.

Goniatites ohioensis Winchell.

1870. *Goniatites Ohioensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 259.
Waverly Group: Newark, Ohio.

Goniatites opimus White and Whitfield.

1862. *Goniatites opimus*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 305.

Chemung Group: Burlington, Iowa.

Goniatites osagensis Swallow.

1860. *Goniatites Osagensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 659.
Chemung Group: Cooper and Moniteau counties, Missouri.

1894. *Goniatites osagensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 221.

Chouteau L. S.: Cooper County, Missouri.

Burlington L. S.: Louisiana, Missouri.

Goniatites oweni. See *Munsteroceras oweni*.**Goniatites oweni** var. *parallela*. See *Munsteroceras parallelum*.**Goniatites parrishi** Miller and Gurley.

1896. *Goniatites parrishi*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 36, pl. 4, figs. 6-8.

Upper Coal Measures: Kansas City, Missouri.

Goniatites parvus Shumard.

1858. *Goniatites parvus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 199.
Upper Coal Measures: Willow Spring, on Santa Fe Road, Kansas.

Goniatites planorbiformis Shumard.

1855. *Goniatites planorbiformis*. Shumard, Geol. Surv. Mo., p. 208, pl. C, figs. 11a, b.
Coal Measures: Missouri River, above Dover Landing.

1894. *Goniatites planorbiformis*. Keyes, Mo. Geol. Surv., vol. 5, p. 221.

Upper Coal Measures: Kansas City, Missouri.

Goniatites politus Shumard.

1858. *Goniatites politus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 199.
Middle Coal Measures: Lexington, Missouri.

1894. *Goniatites politus*. Keyes, Mo. Geol. Surv., vol. 5, p. 221.

Upper Coal Measures: Lexington, Mo.

Goniatites propinquus Winchell.

1862. *Goniatites propinquus*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 365.

Marshall S. S.: Pointe Aux Barques, Michigan.

Goniatites pygmaeus Winchell.

1862. *Goniatites pygmaeus*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 366.

Marshall S. S.: † Battle Creek, Michigan.

Goniatites romingeri Winchell.

1862. *Goniatites Romingeri*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 427.

Marshall Group: Marshall, Michigan.

Goniatites rotatorius. See *Brancoceras ixion*.**Goniatites sciotoensis** Miller and Faber.

1892. *Goniatites sciotoensis*. Miller and Faber, Jour. Cinn. Soc. Nat. Hist., vol. 14, p. 165, pl. 6, figs. 2, 3.

Upper Waverly Group: Sciotoville, Ohio.

Goniatites shumardianus Winchell.

1862. *Goniatites Shumardianus*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 364.
Marshall S. S.: Pointe Aux Barques, Michigan.
1870. *Goniatites Shumardianus*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 258.
Waverly Group: Newark, Ohio.

Goniatites subcavus Miller and Gurley.

1896. *Goniatites subcavus*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 45, pl. 5, figs. 15-17.
Coal Measures: Montgomery County, Illinois.

Goniatites subcircularis Miller.

1889. *Goniatites subcircularis*. Miller, N. A. Geol. and Pal., p. 440, fig. 741.
St. Louis Group: Crab Orchard, Kentucky.

Goniatites texanus Shumard.

1863. *Goniatites Texanus*. Shumard, Trans. St. Louis Acad. Sci., vol. 2, p. 109.
Coal Measure? L. S.: Bluffs of Wallace Creek, San Saba County, Texas.

Goniatites (species undetermined).

1873. *Goniatites* (sp. undet.). Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 30, figs. 1a, b.
Coal Measures.
1888. *Goniatites* sp. ? Herrick, Bull. Den. Univ., vol. 3, pl. 7, fig. 27.
Waverly Group: Licking County, Ohio.
1888. *Goniatites* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 5.
Bedford Shale: Central College, Ohio.
1889. *Goniatites* sp. Herrick, Am. Geol., vol. 3, pl. 4, fig. 5.
Bedford Shale, Ohio.
1895. *Goniatites* sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 5.
Bedford Shale: Central College, Ohio.

GONIOCRINUS Miller and Gurley, 1890.**Goniocrinus sculptilis** Miller and Gurley.

1890. *Goniocrinus sculptilis*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 352, pl. 6, figs. 2-5.
Kinderhook Group: Legrand, Iowa.

GONIODON Herrick, 1888.**Goniodon ohioensis** Herrick, 1888.

1888. *Goniodon ohioensis*. Herrick, Bull. Den. Univ., vol. 3, p. 84, pl. 12, figs. 23-25.
Waverly Group, Licking County, Ohio.
1895. *Goniodon* (*Palæoneilo* ?) *ohioensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 21; pl. 24, fig. 23.
Cuyahoga Shale: Moot's Run, Ohio.

GONIOPHORA Phillips, 1848.**Goniophora plicata** Hall.

1856. *Cypricardella plicata*. Hall., Trans. Alb. Inst., vol. 4, p. 18.
St. Louis L. S.: Bloomington, Indiana.
1882. *Goniophora plicata*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 66, pl. 7, fig. 39.
St. Louis Group: Spergen Hill and Bloomington, Indiana.
1883. *Sanguinolites* ? (*Goniophora* ?) *plicata*. Hall, 12th Rep. Geol. Surv. Ind., p. 341, pl. 30, fig. 39.
St. Louis Group: Spergen Hill, Bloomington, and Lanesville, Indiana.

GRAEOPHONUS Scudder, 1890.

Græophonus carbonarius Scudder.

1876. *Libellula carbonaria*. Scudder, Proc. Am. Ass. Adv. Sci., vol. 24, p. 111, fig. 1.
Carboniferous: Near Sydney, Cape Breton.
1876. *Libellula carbonaria*. Scudder, Can. Nat. (2), vol. 8, p. 88, fig. 1.
Carboniferous: Cape Breton, Nova Scotia.
1878. *Libellula Carbonaria*. Dawson, Supp. to 2d ed. Acad. Geol., p. 53, fig. 8.
Carboniferous: Nova Scotia.
1885. *Libellula carbonaria*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 350.
Carboniferous: Nova Scotia.
1890. *Græophonus carbonarius*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4,
p. 454, pl. 40, figs. 2, 3, 6.
Carboniferous: Mazon Creek, Illinois.
1890. *Græophonus carbonarius*. Scudder, Foss. Insc. N. A., vol. 1, p. 430, pl. 32,
figs. 2, 3, 6.
Carboniferous: Mazon Creek, Illinois, and Cape Breton.

GRAMMYSIA De Verneuil, 1847.

Grammysia arcuata Conrad.

1884. *Grammysia arcuata*. Walcott, Pal. Eureka Dist., p. 245, pl. 20, fig. 5.
Lower Carboniferous: Eureka District, Nevada.

Grammysia blairi Miller.

1891. *Grammysia blairi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 93,
pl. 20, fig. 4.
Chouteau, L. S.: Sedalia, Missouri.
1892. *Grammysia blairi*. Miller, 17th Rep. Geol. Surv. Ind., p. 703, pl. 20, fig. 4.
Chouteau L. S.: Sedalia, Missouri.

Grammysia famelica Herrick.

1888. *Grammysia famelica*. Herrick, Bull. Den. Univ., vol. 4, p. 35, pl. 6, fig. 5.
Waverly Group: Granville, Ohio.
1895. *Grammysia famelica*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 17, fig. 5.
Upper Cuyahoga Shale: Licking County, Ohio.

Grammysia hannibalensis Shumard.

- 1855. *Allorisma Hannibalensis*. Shumard, Geol. Rep. Mo., p. 206, pl. C, fig. 19.
Lithographic L. S.: Hannibal, Missouri.
- 1865. *Sanguinolites Hannibalensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 123.
Marshall Group: Hilledale, Mich.
- ↘ 1870. *Allorisma (Sedgwickia) Hannibalensis*. Winchell, Proc. Am. Phil. Soc., vol.
11, p. 256.
Waverly Group: Newark, Ohio.
- 1875. *Grammysia ? Hannibalensis*. Meek, Pal. Ohio, vol. 2, p. 300, pl. 16, figs. 5a-c.
Waverly Group: Medina and Cuyahoga Falls, Ohio; Burlington, Iowa;
Hannibal, Missouri.
- 1884. *Grammysia Hannibalensis*. Walcott, Pal. Eureka Dist., p. 244, pl. 20, fig. 4.
Lower Carboniferous: Eureka District, Nevada.
- ↘ 1885. *Grammysia Hannibalensis*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 381, pl. 61,
figs. 29, 30, 33.
Waverly S. S.: Summit and Cuyahoga Falls, Ohio.
Lithographic L. S.: Hannibal, Missouri.
1886. *Grammysia hannibalensis*. Claypole, Proc. and Coll. Wyo. Hist. and Geol.
Soc., vol. 2, pt. 2, p. 248.
Lower Coal Measures: Wilkesbarre, Pennsylvania.

Goniatites brownensis Miller.

1891. *Goniatites brownensis*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 90, pl. 18, figs. 3, 4.

Waverly or Knobstone Group: Brown County, Indiana.

1892. *Goniatites brownensis*. Miller, 17th Rep. Geol. Surv. Ind., p. 700, pl. 18, figs. 3, 4.

Waverly or Knobstone Group: Brown County, Indiana.

Goniatites choctawensis Shumard.

1863. *Goniatites Choctawensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 2, p. 109. Coal Measures: Choctaw Nation.

Goniatites colubrellus Morton.

1836. *Ammonites colubrellus*. Morton, Am. Jour. Sci. (1), vol. 29, p. 154, pl. 28, figs. 49, 51.

Coal Measures: Ohio Valley.

Goniatites compactus Meek and Worthen.

1865. *Goniatites compactus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 154. Coal Measures: Macoupin County, Illinois.

1873. *Goniatites compactus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 611, pl. 31, fig. 2.

Coal Measures: Menard County, Illinois.

Goniatites elkhornensis Miller and Gurley.

1896. *Goniatites elkhornensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 37, pl. 4, figs. 9-11.

Coal Measures: Elkhorn Creek, Kentucky.

Goniatites entogonus. See *Gastrioceras entogonus*.**Goniatites fultonensis** Miller and Gurley.

1896. *Goniatites fultonensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 39, pl. 4, figs. 15-17.

Coal Measures: Fulton County, Illinois.

Goniatites globulosus. See *Gastrioceras globulosum*.**Goniatites globulosus** var. *excelsus*. See *Gastrioceras excelsum*.**Goniatites goniolobus** Meek.

1877. *Goniatites goniolobus*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 98, pl. 9, figs. 5-5b.

Carboniferous: New Mexico.

Goniatites gorbyi Miller.

1891. *Goniatites gorbyi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 90, pl. 15, fig. 1.

Chouteau L. S.: Pin Hook Bridge, Pettis County, Missouri.

1892. *Goniatites gorbyi*. Miller, 17th Rep. Geol. Surv. Ind., p. 700, pl. 15, fig. 1.

Chouteau L. S.: Pin Hook Bridge, Pettis County, Missouri.

1894. *Goniatites gorbyi*. Keyes, Mo. Geol. Surv., vol. 5, p. 220.

Chouteau L. S.: Sedalia, Missouri.

Goniatites greencastleensis Miller and Gurley.

1896. *Goniatites greencastleensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 44, pl. 5, figs. 12-14.

St. Louis Group: Greencastle, Indiana.

Goniatites greenii Miller.

1892. *Goniatites greenii*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 76, pl. 10, figs. 5, 6.

Knobstone Group: Near New Albany, Indiana.

1894. *Goniatites greenii*. Miller, 18th Rep. Geol. Surv. Ind., p. 330, pl. 10, figs. 5, 6.

Knobstone Group: Near New Albany, Indiana.

Goniatites hathawayanus McChesney.

1860. *Goniatites hathawayana*. McChesney, Desc. New Pal. Foss., p. 66.

Coal Measures: Lasalle, Illinois.

1865. *Goniatites hathawayana*. McChesney, Ill. New Spec. Foss., pl. 3, fig. 3.

1868. *Goniatites Hathawayanus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 53, pl. 3, fig. 3.

Coal Measures: Lasalle, Illinois.

Goniatites hildrethi Morton.

1836. *Ammonites Hildrethi*. Morton, Am. Jour. Sci. (1), vol. 29, p. 149, pl. 1, fig. 24; pl. 28, figs. 48, 50, 53.

Goniatites holmesii Swallow.

1860. *Goniatites (?) Holmesii*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 659.

Chemung: Cooper County, Missouri.

Goniatites houghtoni Winchell.

1862. *Goniatites Houghtoni*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 363.

Marshall S. S.: Marshall, Michigan.

Goniatites hyas. See *Goniatites lyoni*.**Goniatites illinoisensis** Miller and Gurley.

1896. *Goniatites illinoisensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus.

Nat. Hist., p. 42, pl. 5, figs. 6-8.

Coal Measures: Montgomery County, Illinois.

Goniatites indianensis Miller.

1891. *Goniatites indianensis*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 90, pl. 19, figs. 2, 3.

Knobstone or Waverly Group: Clark County, Ind.

1892. *Goniatites indianensis*. Miller, 17th Rep. Geol. Surv. Ind., p. 700, pl. 19, figs. 2, 3.

Knobstone or Waverly Group: Clark County, Indiana.

Goniatites iowensis. See *Paralegoceras iowensis*.**Goniatites ixion**. See *Brancoceras ixion*.**Goniatites jessiae** Miller and Gurley.

1896. *Goniatites jessiae*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 46, pl. 5, figs. 18-20.

Chouteau L. S.: Near Sedalia, Missouri.

Goniatites kansasensis Miller and Gurley.

1896. *Goniatites kansasensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 43, pl. 5, figs. 9-11.

Upper Coal Measures: Kansas City, Missouri.

Goniatites kentuckiensis. See *Glyphioceras kentuckiensis*.**Goniatites kingii**. See *Gastrioceras kingii*.**Goniatites leviculus** Miller and Faber.

1892. *Goniatites leviculus*. Miller and Faber, Jour. Cinn. Soc. Nat. Hist., vol. 14, p. 167, pl. 6, figs. 10, 11.

St. Louis Group: Crab Orchard, Kentucky.

Goniatites limatus Miller and Faber.

1892. *Goniatites limatus*. Miller and Faber, Jour. Cinn. Soc. Nat. Hist., vol. 14, p. 166, pl. 6, figs. 8, 9.

St. Louis Group: Crab Orchard, Kentucky.

Goniatites louisianensis Rowley.

1895. *Goniatites louisianensis*. Rowley, Am. Geol., vol. 16, p. 221, figs. 15-18.

Louisiana L. S.: Louisiana, Missouri.

Goniatites lunatus Miller and Gurley.

1896. *Goniatites lunatus*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 41, pl. 5, figs. 2-5.
Coal Measures: Elkhorn Creek, Kentucky.

Goniatites lyoni Meek and Worthen.

1860. *Goniatites Lyoni*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 471.
Goniatite bed: Rockford, Indiana.
1860. *Goniatites hyas*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 102, figs. 17, 18.
Goniatite L. S.: Rockford, Indiana.
1866. *Goniatites Lyoni*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 165, pl. 14, figs. 11a-c.
Goniatite bed: Rockford, Indiana.
1879. *Goniatites Lyoni*. Hall, Pal. N. Y., vol. 5, pt. 2, p. 476, pl. 72, fig. 12; pl. 73, figs. 9-11; pl. 74, fig. 7.
Goniatite L. S.: Rockford, Indiana.
1888. *Goniatites lyoni*. Herrick, Bull. Den. Univ., vol. 3, p. 92.
Waverly Group: Licking County, Ohio.
1888. *Goniatites lyoni*. Herrick, Bull. Den. Univ., vol. 4, pl. 7, fig. 2.
Waverly Group: Ohio.
1895. *Goniatites lyoni*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 18, fig. 2.
Kinderhook Freestone: Granville, Ohio.

Goniatites marshallensis Winchell.

1862. *Goniatites Marshallensis*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 362.
Marshall S. S.: Marshall, Moscow, and Hardwood Point, Michigan.
1865. *Goniatites Marshallensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 133.
Marshall Group: Napoleon Cut, Jackson County, Michigan; Weymouth, Medina County, Ohio.
1870. *Goniatites Marshallensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 258.
Waverly Group: Newark, Ohio.

Goniatites minimus Shumard.

1858. *Goniatites minimus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 200.
Middle Coal Measures: Above Dover Landing, Missouri.
1894. *Goniatites minimus*. Keyes, Mo. Geol. Surv., vol. 5, p. 221.
Upper Coal Measures: Dover Landing and Kansas City, Missouri.

Goniatites missouriensis Miller and Faber.

1892. *Goniatites missouriensis*. Miller and Faber, Jour. Cinn. Soc. Nat. Hist., vol. 14, p. 164, pl. 6, fig. 1.
Upper Coal Measures: Near Kansas City, Missouri.

Goniatites monroensis Worthen.

1890. *Goniatites monroensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 150, pl. 26, fig. 5.
St. Louis L. S.: Waterloo, Monroe County, Illinois.

Goniatites montgomeryensis Miller and Gurley.

1896. *Goniatites montgomeryensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 38, pl. 4, figs. 12-14.
Coal Measures: Montgomery County, Illinois.

Goniatites morganensis Swallow.

1860. *Goniatites Morganensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 659.
Chouteau L. S.: Missouri.

Goniatites noliensis Cox.

1857. *Goniatites noliensis*. Cox, Geol. Surv. Ky., vol. 3, p. 574, pl. 10, figs. 1-1b.
Coal Measures: Nolin Iron Works, Edmonson County, Kentucky.
1891. *Goniatites nolenensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 264.
Lower Coal Measures: Des Moines, Iowa.

Goniatites occidentalis Miller and Faber.

1892. *Goniatites occidentalis*. Miller and Faber, Jour. Cinn. Soc. Nat. Hist., vol. 14, p. 166, pl. 6, figs. 6, 7.
Coal Measures: Elkhorn Creek, Kentucky.

Goniatites ohioensis Winchell.

1870. *Goniatites Ohioensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 259.
Waverly Group: Newark, Ohio.

Goniatites opimus White and Whitfield.

1862. *Goniatites opimus*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 305.
Chemung Group: Burlington, Iowa.

Goniatites osagensis Swallow.

1860. *Goniatites Osagensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 659.
Chemung Group: Cooper and Moniteau counties, Missouri.
1894. *Goniatites osagensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 221.
Chouteau L. S.: Cooper County, Missouri.
Burlington L. S.: Louisiana, Missouri.

Goniatites oweni. See *Munsteroceras oweni*.**Goniatites oweni** var. *parallela*. See *Munsteroceras parallelum*.**Goniatites parrishi** Miller and Gurley.

1896. *Goniatites parrishi*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 36, pl. 4, figs. 6-8.
Upper Coal Measures: Kansas City, Missouri.

Goniatites parvus Shumard.

1858. *Goniatites parvus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 199.
Upper Coal Measures: Willow Spring, on Santa Fe Road, Kansas.

Goniatites planorbiformis Shumard.

1855. *Goniatites planorbiformis*. Shumard, Geol. Surv. Mo., p. 208, pl. C, figs. 11a, b.
Coal Measures: Missouri River, above Dover Landing.
1894. *Goniatites planorbiformis*. Keyes, Mo. Geol. Surv., vol. 5, p. 221.
Upper Coal Measures: Kansas City, Missouri.

Goniatites politus Shumard.

1858. *Goniatites politus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 199.
Middle Coal Measures: Lexington, Missouri.
1894. *Goniatites politus*. Keyes, Mo. Geol. Surv., vol. 5, p. 221.
Upper Coal Measures: Lexington, Mo.

Goniatites propinquus Winchell.

1862. *Goniatites propinquus*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 365.
Marshall S. S.: Pointe Aux Barques, Michigan.

Goniatites pygmæus Winchell.

1862. *Goniatites pygmæus*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 366.
Marshall S. S.: † Battle Creek, Michigan.

Goniatites romingeri Winchell.

1862. *Goniatites Romingeri*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 427.
Marshall Group: Marshall, Michigan.

Goniatites rotatorius. See *Brancoceras ixion*.**Goniatites sciotoensis** Miller and Faber.

1892. *Goniatites sciotoensis*. Miller and Faber, Jour. Cinn. Soc. Nat. Hist., vol. 14, p. 165, pl. 6, figs. 2, 3.
Upper Waverly Group: Sciotoville, Ohio.

Goniatites shumardianus Winchell.

1862. *Goniatites Shumardianus*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 364.
Marshall S. S.: Pointe Aux Barques, Michigan.
1870. *Goniatites Shumardianus*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 258.
Waverly Group: Newark, Ohio.

Goniatites subcavus Miller and Gurley.

1896. *Goniatites subcavus*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 45, pl. 5, figs. 15-17.
Coal Measures: Montgomery County, Illinois.

Goniatites subcircularis Miller.

1889. *Goniatites subcircularis*. Miller, N. A. Geol. and Pal., p. 440, fig. 741.
St. Louis Group: Crab Orchard, Kentucky.

Goniatites texanus Shumard.

1863. *Goniatites Texanus*. Shumard, Trans. St. Louis Acad. Sci., vol. 2, p. 109.
Coal Measure? L. S.: Bluffs of Wallace Creek, San Saba County, Texas.

Goniatites (species undetermined).

1873. *Goniatites* (sp. undet.). Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 30, figs. 1a, b.
Coal Measures.
1888. *Goniatites* sp. ? Herrick, Bull. Den. Univ., vol. 3, pl. 7, fig. 27.
Waverly Group: Licking County, Ohio.
1888. *Goniatites* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 5.
Bedford Shale: Central College, Ohio.
1889. *Goniatites* sp. Herrick, Am. Geol., vol. 3, pl. 4, fig. 5.
Bedford Shale, Ohio.
1895. *Goniatites* sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 5.
Bedford Shale: Central College, Ohio.

GONIOCRINUS Miller and Gurley, 1890.**Goniocrinus sculptilis** Miller and Gurley.

1890. *Goniocrinus sculptilis*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 352, pl. 6, figs. 2-5.
Kinderhook Group: Legrand, Iowa.

GONIODON Herrick, 1888.**Goniodon ohioensis** Herrick, 1888.

1888. *Goniodon ohioensis*. Herrick, Bull. Den. Univ., vol. 3, p. 84, pl. 12, figs. 23-25.
Waverly Group, Licking County, Ohio.
1895. *Goniodon* (*Palæoneilo* ?) *ohioensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 21; pl. 24, fig. 23.
Cuyahoga Shale: Moot's Run, Ohio.

GONIOPHORA Phillips, 1848.**Goniophora plicata** Hall.

1856. *Cypricardella plicata*. Hall., Trans. Alb. Inst., vol. 4, p. 18.
St. Louis L. S.: Bloomington, Indiana.
1882. *Goniophora plicata*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 66, pl. 7, fig. 39.
St. Louis Group: Spergen Hill and Bloomington, Indiana.
1883. *Sanguinolites* ? (*Goniophora* ?) *plicata*. Hall, 12th Rep. Geol. Surv. Ind., p. 341, pl. 30, fig. 39.
St. Louis Group: Spergen Hill, Bloomington, and Lanesville, Indiana.

GRAEOPHONUS Scudder, 1890.

Græophonus carbonarius Scudder.

1876. *Libellula carbonaria*. Scudder, Proc. Am. Ass. Adv. Sci., vol. 24, p. 111, fig. 1.
Carboniferous: Near Sydney, Cape Breton.
1876. *Libellula carbonaria*. Scudder, Can. Nat. (2), vol. 8, p. 88, fig. 1.
Carboniferous: Cape Breton, Nova Scotia.
1878. *Libellula Carbonaria*. Dawson, Supp. to 2d ed. Acad. Geol., p. 53, fig. 8.
Carboniferous: Nova Scotia.
1885. *Libellula carbonaria*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 350.
Carboniferous: Nova Scotia.
1890. *Græophonus carbonarius*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4,
p. 454, pl. 40, figs. 2, 3, 6.
Carboniferous: Mazon Creek, Illinois.
1890. *Græophonus carbonarius*. Scudder, Foss. Insc. N. A., vol. 1, p. 430, pl. 32,
figs. 2, 3, 6.
Carboniferous: Mazon Creek, Illinois, and Cape Breton.

GRAMMYSIA De Verneuil, 1847.

Grammysia arcuata Conrad.

1884. *Grammysia arcuata*. Walcott, Pal. Eureka Dist., p. 245, pl. 20, fig. 5.
Lower Carboniferous: Eureka District, Nevada.

Grammysia blairi Miller.

1891. *Grammysia blairi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 93,
pl. 20, fig. 4.
Chouteau, L. S.: Sedalia, Missouri.
1892. *Grammysia blairi*. Miller, 17th Rep. Geol. Surv. Ind., p. 703, pl. 20, fig. 4.
Chouteau L. S.: Sedalia, Missouri.

Grammysia famelica Herrick.

1888. *Grammysia famelica*. Herrick, Bull. Den. Univ., vol. 4, p. 35, pl. 6, fig. 5.
Waverly Group: Granville, Ohio.
1895. *Grammysia famelica*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 17, fig. 5.
Upper Cuyahoga Shale: Licking County, Ohio.

Grammysia hannibalensis Shumard.

1855. *Allorisma Hannibalensis*. Shumard, Geol. Rep. Mo., p. 206, pl. C, fig. 19.
Lithographic L. S.: Hannibal, Missouri.
1865. *Sanguinolites Hannibalensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 123.
Marshall Group: Hillsdale, Mich.
1870. *Allorisma (Sedgwickia) Hannibalensis*. Winchell, Proc. Am. Phil. Soc., vol.
11, p. 256.
Waverly Group: Newark, Ohio.
1875. *Grammysia ? Hannibalensis*. Meek, Pal. Ohio, vol. 2, p. 300, pl. 16, figs. 5a-c.
Waverly Group: Medina and Cuyahoga Falls, Ohio; Burlington, Iowa;
Hannibal, Missouri.
1884. *Grammysia Hannibalensis*. Walcott, Pal. Eureka Dist., p. 244, pl. 20, fig. 4.
Lower Carboniferous: Eureka District, Nevada.
1885. *Grammysia Hannibalensis*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 381, pl. 61,
figs. 29, 30, 33.
Waverly S. S.: Summit and Cuyahoga Falls, Ohio.
Lithographic L. S.: Hannibal, Missouri.
1886. *Grammysia hannibalensis*. Claypole, Proc. and Coll. Wyo. Hist. and Geol.
Soc., vol. 2, pt. 2, p. 248.
Lower Coal Measures: Wilkesbarre, Pennsylvania.

Grammysia hannibalensis Shumard—Continued.

1888. *Grammysia hannibalensis*. Herrick, Bull. Den. Univ., vol. 3, p. 75, pl. 4, fig. 13.
Waverly Group: Licking County, Ohio.
1888. *Grammysia* (?) *hannibalensis*. Herrick, Bull. Den. Univ., vol. 4, pl. 6, fig. 11.
Waverly Group: Ohio.
1894. *Allorisma hannibalensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 127.
Louisiana L. S.: Hannibal, Missouri.
1895. *Grammysia* ? *hannibalensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 17, fig. 11.
Kinderhook: Granville, Ohio.

Grammysia herricki Miller.

1888. *Grammysia ovata*. Herrick, Bull. Den. Univ., vol. 4, p. 35, pl. 3, fig. 12.
(Not *G. ovata* Hall, 1885.)
Waverly Group: Newark, Ohio.
1892. *Grammysia herricki*. Miller, First Appendix to N. A. Geol. and Pal., p. 700.
1895. *Grammysia ovata* Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 7.
Burlington Group: Newark, Ohio.

Grammysia ovata Herrick. See *Grammysia herricki*.

Grammysia plena Hall.

1885. *Grammysia plena*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 382, pl. 61, figs. 31, 32.
Yellow S. S.: Burlington, Iowa.

Grammysia rhomboides Meek.

1871. *Grammysia* ? *rhomboides*. Meek, Proc. Acad. Nat. Sci. Phil., p. 72.
Waverly Group: Rushville, Ohio.
1875. *Grammysia* ? *rhomboides*. Meek, Pal. Ohio, vol. 2, p. 302, pl. 16, figs. 7a, b.
Waverly Group: Medina, Ohio.
1888. *Grammysia rhomboides*. Herrick, Bull. Den. Univ., vol. 3, p. 75, pl. 8, fig. 12.
Waverly Group: Licking County, Ohio.

Grammysia ventricosa Meek.

1871. *Grammysia ventricosa*, Proc. Acad. Nat. Sci. Phil., p. 73.
Waverly Group: Rushville, Ohio.
1875. *Grammysia ventricosa*. Meek, Pal. Ohio, vol. 2, p. 303, pl. 13, figs. 5a, b,
pl. 16, figs. 6a, b.
Waverly Group: Medina, Ohio.
1888. *Grammysia ventricosa*. Herrick, Bull. Den. Univ., vol. 3, p. 76.
Waverly Group: Licking County, Ohio.

Grammysia (species undetermined).

1886. *Grammysia* (sp. ?). Heilprin, 2d Geol. Surv. Penn., Ann. Rep. 1885, p. 442,
fig. 8.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Grammysia* (sp. ?) Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc.,
vol. 2, pt. 2, p. 270, fig. 8.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1888. *Grammysia* sp. Herrick, Bull. Den. Univ., vol. 3, p. 76, pl. 12, fig. 3.
Waverly Group: Licking County, Ohio.
1888. *Grammysia*, imperfect cast. Herrick, Bull. Den. Univ., vol. 3, pl. 4, fig. 8.
Waverly Group: Licking County, Ohio.

GRANATOCRINUS Troost, 1850.**Granatocrinus apatus** Rowley and Hare.

1891. *Granatocrinus apatus*. Rowley and Hare, The Kansas City Scientist, vol.
5, p. 117, pl. 3, figs. 11, 12.
Upper Burlington L. S.: Louisiana and Spencer Creek north of Curryville,
Missouri.

Granatocrinus concinnulus Rowley and Hare.

1891. *Granatocrinus concinnulus*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 117, pl. 3, figs. 13, 14.

Lower Burlington L. S.: Louisiana, Missouri.

Granatocrinus cornutus. See *Heteroblastus cornutus*.**Granatocrinus curtus** Shumard.

1855. *Pentremites curtus*. Shumard, Geol. Rep. Mo., p. 187, pl. B, figs. 3a, b.

Archimedes L. S.: Fenton, St. Louis County, Missouri.

1894. *Granatocrinus curtus*. Keyes, Mo. Geol. Surv., vol. 4, p. 140.

St. Louis L. S.: Fenton, Missouri.

Granatocrinus excavatus Rowley and Hare.

1891. *Granatocrinus excavatus*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 99, pl. 2, figs. 9, 10.

Burlington L. S.: Louisiana, Missouri.

Granatocrinus exiguus Rowley and Hare.

1891. *Granatocrinus exiguus*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 100, pl. 2, figs. 13, 14; p. 118, pl. 3, fig. 18.

Lower Burlington L. S.: Louisiana, Missouri.

Granatocrinus granulatus Roemer.

- *1852. *Pentremites granulatus*. Roemer, Monog. Blast., p. 43.

Warsaw Group.

Granatocrinus granulosus. See *Schizoblastus granulosus*.**Granatocrinus lotoblastus**. See *Schizoblastus lotoblastus*.**Granatocrinus magnibasis** Rowley.

1895. *Granatocrinus (Schizoblastus?) magnibasis*. Rowley, Am. Geol., vol. 16, p. 220, figs. 11-14.

Upper Burlington L. S.: Louisiana, Missouri.

Granatocrinus melonoides. See *Schizoblastus melonoides*.**Granatocrinus mutabilis** Rowley.

1893. *Granatocrinus mutabilis*. Rowley, Am. Geol., vol. 12, p. 306, pl. 14, figs. 4-9.

Chouteau L. S.: 3 miles east of Curryville, Missouri.

Granatocrinus neglectus Meek and Worthen.

1869. *Granatocrinus neglectus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 90.

Lower Burlington L. S.: Burlington, Iowa.

1873. *Granatocrinus neglectus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 471, pl. 9, fig. 3.

Burlington L. S.: Burlington, Iowa.

1894. *Granatocrinus neglectus*. Keyes, Mo. Geol. Surv., vol. 4, p. 139.

Lower Burlington L. S.: Hannibal and Louisiana, Missouri.

Granatocrinus norwoodi Owen and Shumard.

1850. *Pentremites norwoodi*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 64, pl. 7, figs. 13a-c.

Subcarboniferous L. S.: Burlington and Augusta, Iowa; Oquawka, Illinois.

1852. *Pentremites norwoodii*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 591, tab. 5A, figs. 13a-c.

Subcarboniferous L. S.: Burlington and Augusta, Iowa; Oquawka, Illinois.

1866. *Granatocrinus Norwoodi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 258.

Upper Burlington Group: Burlington, Iowa.

Granatocrinus norwoodi Owen and Shumard—Continued.

1868. *Granatocrinus Norwoodi?* Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 496, pl. 18, fig. 8.
Burlington Group: Burlington, Iowa.
1873. *Granatocrinus Norwoodi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 473, pl. 9, fig. 2.
1886. *Granatocrinus norwoodi*. Etheridge and Carpenter, Cat. Blast., p. 245, pl. 2, figs. 34–36; pl. 3, fig. 16; pl. 6, figs. 19, 20; pl. 7, figs. 1–13; pl. 10, fig. 11; pl. 11, fig. 14; pl. 17, fig. 8.
Upper Burlington L. S.: Burlington, Iowa; Pleasant Grove, Iowa; near Monmouth, Illinois.
1894. *Granatocrinus norwoodi*. Keyes, Mo. Geol. Surv., vol. 4, p. 140, pl. 18, fig. 10.
Upper Burlington L. S.: Ash Grove, Palmyra and Hannibal, Missouri.

Granatocrinus pisum. See *Cryptoblastus pisum*.

Granatocrinus projectus. See *Cryptoblastus projectus*.

Granatocrinus pyriformis Rowley and Hare.

1891. *Granatocrinus pyriformis*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 118, pl. 3, figs. 15, 16.
Upper Burlington L. S.: Bear Creek Station, Marion County, Missouri.

Granatocrinus shumardi Meek and Worthen.

1866. *Granatocrinus Shumardi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 257.
Lower Burlington Group: Burlington, Iowa.
1868. *Granatocrinus Shumardi*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 498, pl. 18, figs. 6a, b.
Burlington Group: Burlington, Iowa.

Granatocrinus sphaeroidalis Miller and Gurley.

1894. *Granatocrinus sphaeroidalis*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 65, pl. 6, figs. 31–33.
Kaskaskia Group: Meade County, Kentucky.

Granatocrinus winslowi Miller and Gurley.

1884. *Granatocrinus winslowi*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 66, pl. 6, figs. 34, 35.
? Burlington Group: Drift at Danville, Illinois.

GRAPHIOCRINUS De Koninck and Lehon, 1853.

Graphiocrinus carbonarius Meek and Worthen.

1861. *Poteriocrinus (Scaphiocrinus?) carbonarius*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 140.
Coal Measures: Near Springfield, Illinois.
1865. *Poteriocrinus (Zeacrinus) carbonarius*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 152.
1873. *Scaphiocrinus carbonarius*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 562, pl. 24, fig. 2.
Upper Coal Measures: Springfield, Illinois.
1894. *Phialocrinus carbonarius*. Keyes, Mo. Geol. Surv., vol. 4, p. 219.
Upper Coal Measures: Kansas City, Missouri.

Graphiocrinus dactylus. See *Scytalocrinus dactylus*.

Graphiocrinus longicirifer Wachsmuth and Springer.

1890. *Graphiocrinus longicirifer*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 193, pl. 15, fig. 12; pl. 17, fig. 14.
Kinderhook Group: Legrand, Iowa.

Graphiocrinus macadamsi Worthen.

1873. *Scaphiocrinus McAdamsi*. Worthen, Geol. Surv. Ill., vol. 5, p. 495, pl. 15, fig. 2.
Keokuk L. S.: Otter Creek, Jersey County, Illinois.

Graphiocrinus 14 brachialis. See *Eupachycrinus quatuor-decem-brachialis*.**Graphiocrinus rudis** Meek and Worthen.

1869. *Scaphiocrinus rudis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 139.
Upper Burlington L. S.: Burlington, Iowa.
1873. *Scaphiocrinus rudis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 412,
pl. 1, fig. 1.
Burlington L. S.: Burlington, Iowa.

Graphiocrinus simplex Hall.

1858. *Scaphiocrinus simplex*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 551, pl. 9, fig. 10.
Burlington L. S.: Burlington, Iowa.

Graphiocrinus spinobrachiatus Hall.

1861. *Scaphiocrinus spinobrachiatus*. Hall, Desc. New Spec. Crin., p. 8.
Burlington L. S.
1861. *Scaphiocrinus spinobrachiatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7,
p. 306.
Burlington L. S.: Burlington, Iowa.

Graphiocrinus striatus Meek and Worthen.

1869. *Scaphiocrinus striatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 142.
Lower Burlington L. S.: Burlington, Iowa.
1873. *Scaphiocrinus striatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 418,
pl. 2, fig. 11.
Burlington L. S.: Burlington, Iowa.

Graphiocrinus tortuosus Hall.

1861. *Scaphiocrinus tortuosus*. Hall, Desc. New Spec. Crin., p. 7.
Burlington L. S.
1861. *Scaphiocrinus tortuosus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 309.
Burlington L. S.: Burlington, Iowa.
1893. *Graphiocrinus tortuosus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1,
p. 32, pl. 3, figs. 15-17.
Burlington L. S.: Burlington, Iowa.

Graphiocrinus wachsmuthi Meek and Worthen.

1861. *Poteriocrinus (Scaphiocrinus) Wachsmuthi*. Meek and Worthen, Proc. Acad.
Nat. Sci. Phil., p. 141.
Burlington L. S.: Burlington, Iowa.
1868. *Scaphiocrinus Wachsmuthi*. Meek and Worthen, Geol. Surv. Ill., vol. 3,
p. 488, pl. 16, figs. 7a, b.
Burlington Group: Burlington, Iowa.

GRIFFITHIDES Portlock, 1843.

Griffithides bufo Meek and Worthen.

1870. *Phillipsia (Griffithides) bufo*. Meek and Worthen, Proc. Acad. Nat. Sci.
Phil., p. 52.
Keokuk Group: Crawfordsville, Indiana.
1873. *Phillipsia (Griffithides) bufo*. Meek and Worthen, Geol. Surv. Ill., vol. 5,
p. 528, pl. 15, fig. 10.
Keokuk Group: Crawfordsville, Indiana.

Griffithides bufo Meek and Worthen—Continued.

1881. *Phillipsia bufo*. White, 2d Ann. Rep. Dep. Stat. and Geol. Ind., p. 515, pl. 6, fig. 5.
Keokuk Group: Crawfordsville, Indiana.
1887. *Griffithides bufo*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 95, pl. 3, figs. 4, 5, 10.
Keokuk Group: Crawfordsville, Indiana.

Griffithides granulatus Wetherby.

1881. *Proetus granulatus*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 81, pl. 2, figs. 8, 8a, 9, 9a.
Kaskaskia Group: Pulaski County, Kentucky.
1887. *Griffithides granulatus*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 101.
Chester Series: Pulaski County, Kentucky.

Griffithides ornatus Vogdes.

- *1897. *Griffithides ornatus*. Vogdes, Proc. Cal. Acad. Sci., ser. 2, vol. 4, p. 589.
Lower Coal Measures: Conway County, Arkansas.
1897. *Phillipsia (Griffithides) ornata*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 61, pl. 22, fig. 6.
Lower Coal Measures: Conway County, Arkansas.

Griffithides portlocki Meek and Worthen.

1865. *Phillipsia (Griffithides) Portlocki*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 268.
Keokuk L. S.: Warsaw, Illinois.
1873. *Phillipsia (Griffithides) Portlocki*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 525, pl. 19, fig. 6.
Keokuk L. S.: Warsaw, Illinois.
1884. *Griffithides Portlocki*. Walcott, Pal. Eureka Dist., p. 266, pl. 24, figs. 4-4b.
Lower Carboniferous: Eureka District, Nevada.
1887. *Griffithides portlockii*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 93, pl. 3, fig. 9.
Keokuk L. S.: Warsaw, Illinois.
1894. *Phillipsia portlocki*. Keyes, Mo. Geol. Surv., vol. 4, p. 236, pl. 32, fig. 7.
Keokuk L. S.: St. Francisville, Missouri; Keokuk, Iowa.

Griffithides sangamonensis Meek and Worthen.

1865. *Phillipsia (Griffithides?) Sangamonensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 271.
Upper Coal Measures: Springfield, Illinois.
1873. *Phillipsia (Griffithides?) Sangamonensis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 615, pl. 32, fig. 4.
Upper Coal Measures: Springfield, Illinois.
1884. *Phillipsia (Griffithides?) Sangamonensis*. White, 13th Rep. Geol. Surv. Ind., p. 174, pl. 39, figs. 4, 5.
Coal Measures: Indiana.
1886. *Phillipsia Sangamonensis*. Heilprin, 2d Geol. Surv. Penn. Ann. Rep. 1885, p. 458, fig. 14a; p. 446, fig. 14.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Phillipsia Sangamonensis*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 274, fig. 14, p. 277, fig. 14a.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Phillipsia sangamonensis*. Herrick, Bull. Den. Univ., vol. 2, p. 61, pl. 5, fig. 13.
1887. *Griffithides sangamonensis*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 99, pl. 3, figs. 7, 8.
Upper Coal Measures: Springfield, Illinois.

Griffithides scitula Meek and Worthen.

1865. *Phillipsia* (*Griffithides*) *scitula*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 270.
Upper Coal Measures: Springfield, Illinois.
1872. *Phillipsia scitula*. Meek, U. S. Geol. Surv. Nebr., p. 238, pl. 6, fig. 9.
Upper Coal Measures: Nebraska City, Nebraska; Springfield, Illinois.
Lower Coal Measures: Illinois.
1873. *Phillipsia* (*Griffithides*) *scitula*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 612, pl. 32, fig. 3.
Upper Coal Measures: Springfield, Illinois.
1884. *Phillipsia* (*Griffithides*?) *scitula*. White, 13th Rep. Geol. Surv. Ind., p. 173, pl. 39, figs. 6-9.
Coal Measures: Perrysville, Eugene, Lodi, Silverwood, and Newport, Indiana.
1887. *Phillipsia scitula*. Herrick, Bull. Den. Univ., vol. 2, p. 62.
1887. *Griffithides scitula*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 97, pl. 3, figs. 11-13.
Upper Coal Measures: Springfield, Illinois; Plattsmouth, Nebraska.
Lower Coal Measures: Illinois.
1897. *Phillipsia* (*Griffithides*) *scitula*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 61.
Lower Coal Measures, White County, Arkansas.

Griffithides? sedaliensis Vogdes.

1888. *Griffithides* (?) *sedaliensis*. Vogdes, Trans. N. Y. Acad. Sci., vol. 7, p. 249.
Waverly Group: Sedalia, Missouri.
1894. *Phillipsia sedaliensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 235.
Chouteau L. S.: Sedalia, Missouri.

GYROCERAS De Koninck, 1844.

Gyroceras burlingtonensis Owen. See *Nautilus burlingtonensis*.

Gyroceras gracile Hall.

1860. *Gyroceras gracile*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 105, figs. 1, 2.
Goniatite L. S.: Rockford, Indiana.

Gyroceras Hartti Dawson. See *Stroboceras hartti*.

Gyroceras rockfordensis Meek and Worthen. See *Solenocheilus rockfordensis*.

Gyroceras stebos Hall.

1886. *Gyroceras Stebos*. Hall, 5th Ann. Rep. N. Y. State Geol., pl. (126) 11, fig. 7.
Waverly Group: Warren, Pennsylvania.
1888. *Gyroceras?* *Stebos*. Beecher, Pal. N. Y., vol. 5, pt. 2, Supp., p. 36, pl. 126, fig. 7.
Waverly Group: Warren County, Pennsylvania.

Gyroceras (species undetermined).

1888. *Gyroceras* sp. Herrick, Bull. Den. Univ., vol. 4, p. 47.
Waverly Group: Ohio.

HADROPHYLLUM Milne-Edwards and Haime, 1850.**Hadrophylum aplatum** Cummins.

1891. *Hadrophylum aplatum*. Cummins, 2d Ann. Rep. Geol. Surv. Tex., p. 552, figs. 60-60b, 61-61b.
Bend Division of the Carboniferous: Texas.

Hadrophyllum glans White.

1862. *Zaphrentis glans*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 32.
Upper Burlington L. S.: Burlington, Iowa.
1880. *Hadrophyllum glans*. White, Cont. to Inv. Pal., No. 8, p. 156, pl. 39, figs. 5a, b.
Upper Burlington L. S.: Burlington, Iowa.
1894. *Hadrophyllum glans*. Keyes, Mo. Geol. Surv., vol. 4, p. 116, pl. 13, figs. 11a, b.
Burlington L. S.: Louisiana and Sedalia, Missouri.

Hadrophyllum tennesseense Miller and Gurley.

1895. *Hadrophyllum tennesseense*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 87, pl. 5, figs. 16-19.
Silicified Subcarboniferous beds of the age of the Keokuk Group: Lincoln County, Tenn.

HALYSIOCRINUS Ulrich, 1886.**Halysiocrinus bradleyi** Meek and Worthen.

1869. *Calceocrinus? Bradleyi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 73.
Keokuk Group: Crawfordsville, Indiana.
1873. *Calceocrinus? Bradleyi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 502, pl. 14, fig. 9.
Keokuk Group: Crawfordsville, Indiana.

Halysiocrinus perplexus Shumard.

1866. *Cheirocrinus (Calceocrinus?) perplexus*. Shumard, Trans. St. Louis Acad. Sci., vol. 2, p. 358.
Blue calcareous shale (Keokuk): Button-mould Knob, Kentucky.

Halysiocrinus robustus Worthen.

1890. *Calceocrinus robustus*. Worthen, Geol. Surv. Ill., vol. 8, p. 92, pl. 12, fig. 7.
Keokuk L. S.: Keokuk, Iowa.

Halysiocrinus tunicatus Hall.

1860. *Cheirocrinus tunicatus*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 124.
Keokuk L. S.
1890. *Calceocrinus tunicatus*. Worthen, Geol. Surv. Ill., vol. 8, p. 93, pl. 12, fig. 6.
Keokuk L. S.: Keokuk, Iowa.
1894. *Calceocrinus tunicatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 222, pl. 30, fig. 4.
Keokuk L. S.: Keokuk, Iowa.

Halysiocrinus ventricosus Hall.

1860. *Cheirocrinus ventricosus*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 123.
Burlington L. S.
1860. *Cheirocrinus dactylus*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 123, figs. 1, 2.
Burlington L. S.
1860. *Cheirocrinus nodosus*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 124.
Keokuk L. S.
1869. *Calceocrinus? Wachsmuthi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 74.
Upper Burlington L. S.: Burlington, Iowa.
1872. *Calceocrinus nodosus*. Hall, Photo. Plates of Crinoids, pl. 6, fig. 15.
1873. *Calceocrinus (?) Wachsmuthi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 444, pl. 2, fig. 1.
Burlington L. S.: Burlington, Iowa.

Halysiocrinus ventricosus Hall—Continued.

1893. *Halysiocrinus ventricosus*. Bather, The Crinoides of Gotland, pt. 1, p. 65, pl. 4, figs. 141, 142.
Burlington L. S.: Burlington, Iowa.
1894. *Calceocrinus ventricosus*. Keyes, Mo. Geol. Surv., vol. 4, p. 222.
Lower Burlington L. S.: Louisiana, Missouri.

HAPLOPHLEBIUM Scudder, 1867.**Haplophlebiium barnesii** Scudder.

1867. *Haplophlebiium Barnesii*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 11, p. 151.
Carboniferous: Cape Breton.
1867. *Haplophlebiium Barnesii*. Dawson, Geol. Mag. (1), vol. 4, p. 386, pl. 17, fig. 1.
Carboniferous: Little Glace Bay, Cape Breton.
1868. *Haplophlebiium Barnesii*. Dawson, Acad. Geol., p. 386, fig. 152.
Coal Measures: Little Glace Bay, Cape Breton.
- *1868. *Haplophlebiium barnesii*. Scudder, Can. Nat. (2), vol. 3, p. 202.
Carboniferous: Cape Breton.
1868. *Haplophlebiium Barnesii*. Scudder, Am. Nat., vol. 1, p. 631, pl. 16, fig. 8.
Coal Measures: Cape Breton.
1884. *Haplophlebiium Barnesii*. Scudder, Proc. Am. Acad. Arts and Sci., vol. 20, p. 172.
Carboniferous: Cape Breton.

Haplophlebiium longipennis Scudder.

1885. *Haplophlebiium longipennis*. Scudder, Proc. Am. Acad. Arts and Sci., vol. 20, p. 172.
Carboniferous: Pittston, Pennsylvania.

HARTTINA Hall, 1893.**Harttina anna** Hartt.

1868. *Centronella Anna*. Hartt, Dawson's Acad. Geol., p. 300, figs. 99a, b.
Carboniferous L. S.: Windsor, Nova Scotia.
1894. *Harttina Anna*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 52, figs. 29-31.
Carboniferous L. S.: Windsor, Nova Scotia.
1895. *Harttina Anna*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 79, figs. 37-39.
Carboniferous L. S.: Windsor, Nova Scotia.

(HELICOPORA Claypole 1883.)

Helicopora archimedes Claypole. See *Archimedes laxus* Hall.

HELIOTRYPA Ulrich 1883.**Heliotrypa bifolia** Ulrich.

1883. *Heliotrypa bifolia*. Ulrich, Jour. Crinn. Soc. Nat. Hist., vol. 6, p. 278, pl. 13, figs. 6-6c.
Kaskaskia Group: Tateville, Kentucky.

HEMERISTIA Dana, 1864.**Hemeristia occidentalis** Dana.

1864. *Hemeristia occidentalis*. Dana, Am. Jour. Sci. (2), vol. 37, p. 35, fig. 2.
Coal Measures: Morris, Illinois.

Hemeristia occidentalis Dana—Continued.

1866. *Hemeristia occidentalis*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 1, p. 191, pl. 6, figs. 1-3.
Carboniferous: Morris, Illinois.
1885. *Hemeristia occidentalis*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 342.
Carboniferous: Morris, Illinois.
1890. *Hemeristia occidentalis*. Scudder, Foss. Insc. N. A., vol. 1, p. 19, 306, pl. 1, figs. 1, 3.
Carboniferous: Morris, Illinois.

(HEMIPRONITES Pander, 1830.)

Hemipronites crassus. See *Derbya crassa*.*Hemipronites crenistria*. See *Orthothetes crenistria* and *Derbya crassa*.*Hemipronites inequalis*. See *Orthothetes inaequalis*.*Hemipronites lasallensis*. See *Derbya crassa*.*Hemipronites umbraculum*. See *Orthothetes crenistria*.

HEMITRYPA Phillips, 1841.

Hemitrypa aspera Ulrich.

1890. *Hemitrypa aspera*. Ulrich, Geol. Surv. Ill., vol. 8, p. 563, pl. 57, figs. 3a, 4-4f.
Keokuk Group: Nauvoo, Illinois; Keokuk and Bentonsport, Iowa.
1894. *Hemitrypa aspera*. Keyes, Mo. Geol. Surv., vol. 5, p. 25.
Keokuk L. S.: Keokuk, Iowa.

Hemitrypa hemitrypa Prout.

1859. *Fenestella hemitrypa*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 444, pl. 17, figs. 4, 4a.
Second Archimedes L. S.: Barrett's Station, St. Louis County, Missouri.
1890. *Hemitrypa proutana*. Ulrich, Geol. Surv. Ill., vol. 8, p. 560, pl. 57, figs. 1-1c.
Keokuk Group: Warsaw, Illinois; Keokuk, Iowa.
Warsaw Beds: Monroe County, and Warsaw, Illinois; Barrett's Station, Missouri.
1894. *Hemitrypa hemitrypa*. Keyes, Mo. Geol. Surv., vol. 5, p. 25.
St. Louis L. S.: Barrett Station, Missouri.

Hemitrypa hemitrypa var. nodulosa Ulrich.

1890. *Hemitrypa proutana* var. *nodulosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 562, pl. 57, figs. 2-2c.
Keokuk L. S.: Keokuk and Bentonsport, Iowa; Nauvoo, Illinois.

Hemitrypa hemitrypa var. vermifera Ulrich.

1890. *Hemitrypa proutana* var. *vermifera*. Ulrich, Geol. Surv. Ill., vol. 8, p. 561, pl. 57, figs. 5, 5a.
Warsaw Beds: Warsaw, Illinois.

Hemitrypa nodosa Ulrich.

1890. *Hemitrypa nodosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 562, pl. 57, fig. 3.
Keokuk Group: Nauvoo, Illinois; Keokuk and Bentonsport, Iowa.
1894. *Hemitrypa nodosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 25.
Keokuk L. S.: Bentonsport, Iowa.

Hemitrypa pateriformis Ulrich.

1890. *Hemitrypa pateriformis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 564, pl. 57, figs. 7-7c.
Keokuk Group: Keokuk, Iowa.
1894. *Hemitrypa pateriformis*. Keyes, Mo. Geol. Surv., vol. 5, p. 26.
Keokuk L. S.: Keokuk, Iowa.

Hemitrypa perstriata Ulrich.

1890. *Hemitrypa perstriata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 564, pl. 57, figs. 6, 6a.
Keokuk Group: Bentonsport and Keokuk, Iowa.
1894. *Hemitrypa perstriata*. Keyes, Mo. Geol. Surv., vol. 5, p. 25.
Keokuk L. S.: Keokuk, Iowa.

Hemitrypa plumosa Prout.

1858. *Fenestella plumosa*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 236.
Warsaw, Illinois.
1859. *Fenestella plumosa*. Prout, Trans. St. Louis Acad. Sci., vol. 1, pl. 15, figs. 2, 2a.

Hemitrypa proutana Ulrich. See *Hemitrypa hemitrypa*.**Hemitrypa proutana** var. *nodulosa* Ulrich. See *Hemitrypa hemitrypa* var. *nodulosa*.**Hemitrypa proutana** var. *vermifera* Ulrich. See *Hemitrypa hemitrypa* var. *vermifera*.

HETEROBLASTUS Etheridge and Carpenter, 1886.

Heteroblastus cornutus Meek and Worthen.

1861. *Pentremites cornutus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 141.
St. Louis L. S.: Dry Fork, Brown County, Illinois.
1866. *Granatocrinus cornutus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 276,
pl. 20, fig. 1.
St. Louis Group: Near Mount Sterling, Brown County, Illinois.

HETERODICTYA Nicholson, 1875.

Heterodictya gigantea Nicholson.

1875. *Heterodictya gigantea*. Nicholson, Geol. Mag., dec. 2, vol. 2, p. 34, pl. 2,
figs. 1a-e.
Carboniferous L. S.: Jarvis, Township of Walpole, Ontario.

HOLOPEA Hall, 1847.

Holopea conica Winchell.

1863. *Holopea conica*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 21.
Yellow S. S.: Burlington, Iowa.

Holopea grandis Miller and Gurley.

1896. *Holopea grandis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist.,
p. 19, pl. 2, figs. 33, 34.
Knobstone Group: Near New Albany, Indiana.

Holopea newtonensis Whitfield.

1882. *Holopea Newtonensis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 224.
Maxville L. S.: Newtonville, Ohio.
1891. *Holopea Newtonensis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 591, pl. 14,
fig. 12.
Maxville L. S.: Newtonville, Ohio.
1895. *Holopea Newtonensis*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 477, pl. 10,
fig. 12.
Maxville L. S.: Newtonville, Ohio.

Holopea proutana Hall.

1856. *Holopea Proutana*. Hall, Trans. Albany Inst., vol. 4, p. 30.
St. Louis L. S.: Alton, Illinois; Spargen Hill, Indiana.
1882. *Holopea (Callonema?) Proutana*. Whitfield, Bull. Am. Mus. Nat. Hist.,
vol. 1, p. 72, pl. 8, figs. 33, 34.
St. Louis Group: Spargen Hill and Bloomington, Indiana; Alton, Illinois.

Holopea proutana Hall—Continued.

1883. *Holopea proutana*. Hall, 12th Rep. Geol. Surv. Ind., p. 368, pl. 31, figs. 33, 34.
St. Louis Group: Alton, Illinois; Spergen Hill, Lanesville, and Bloomington, Indiana.

Holopea subconica Winchell.

1863. *Holopea subconica*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 21. (Name preoccupied by Hall, 1859.)
Yellow S. S.: Burlington, Iowa.

HOLOPELLA McCoy, 1855.**Holopella mira** Winchell.

1863. *Holopella mira*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 22.
Yellow S. S.: Burlington, Iowa.

HUSTEDIA Hall, 1893.**Hustedia meekana** Shumard.

1858. *Retzia* (?) *Meekana*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 295.
White and Dark Permian L. S.: Guadalupe Mountains.
1859. *Retzia Meekiana*. Meek and Hayden, Trans. St. Louis Acad. Sci., vol. 1, p. 395, pl. 11, fig. 7.
White and Dark Permian L. S.: Guadalupe Mountains.

Hustedia mormoni Marcou.

1858. *Terebratula mormoni*. Marcou, Geol. N. A., p. 51, pl. 6, figs. 11–11c.
Mountain L. S.: Salt Lake City, Utah.
1858. *Retzia punctulifera*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 220.
Upper Coal Measures: Andrain and Howard counties, Missouri; below mouth of Platt River, Nebraska; near Manhattan, at Willow Springs, on Santa Fé Road, and headwaters of Verdigris River, Kansas.
1859. *Retzia mormoni*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 27.
Upper Coal Measures: Manhattan and Leavenworth, Kansas.
1860. *Retzia subglobosa*. McChesney, Desc. New. Pal. Foss., p. 45.
Upper Coal Measures: Menard, Mason, Fulton, Peoria, Tazewell, Knox, and Marshall counties, Illinois.
1864. *Retzia compressa*. Meek, Pal. Cal., vol. 1, p. 14, pl. 2, figs. 7–7c.
Carboniferous: Bass's Ranch, Shasta County, California.
1866. *Retzia mormoni*. Geinitz, Carb. und Dyas in Nebr., p. 39, tab. 3, fig. 6.
Plattsmouth, Nebraska.
1868. *Retzia punctulifera*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 32, pl. 1, figs. 1a–c.
Upper Coal Measure L. S.: Menard, Mason, Fulton, Peoria, Tazewell, Knox, and Marshall counties, Illinois.
1872. *Retzia punctulifera*. Meek, U. S. Geol. Surv. Nebr., p. 181, pl. 1, fig. 13, pl. 5, fig. 7.
Upper Coal Measures: Rock Bluff, Plattsmouth and Nebraska City, Nebraska.
Coal Measures: Nebraska; Kansas; Illinois.
1874. *Eumetria punctulifera*. Derby, Bull. Cornell Univ. (Sci.), vol. 1, No. 2, p. 4, pl. 8, figs. 4, 5, 7, 8, 10; pl. 9, fig. 3.
Coal Measures: Bomjardim and Itaituba, Brazil, and Pichis River, Peru.
1877. *Retzia Mormonii*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 141, pl. 10, figs. 7a–c.
Carboniferous: Near Santa Fé, New Mexico; top of Grass Mountain, Ely Range, 30 miles north of Pioche, Nevada.

Hustedia mormoni Marcou—Continued.

1884. *Retzia radialis*. Walcott, Pal. Eureka Dist., p. 220, pl. 7, figs. 5c-h.
Lower and Upper Carboniferous: Eureka District, Nevada.
1884. *Retzia Mormonii*. White, 13th Rep. Geol. Surv. Ind., p. 136, pl. 35,
figs. 10-12.
Coal Measures: Indiana.
1888. *Retzia mormoni*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 231.
Lower Coal Measures: Des Moines, Iowa.
1894. *Hustedia Mormonii*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 37,
figs. 13-20.
Coal Measures: Near Kansas City, Missouri.
1894. *Retzia mormoni*. Keyes, Mo. Geol. Surv., vol. 5, p. 95, pl. 41, figs. 2a-c.
Upper Coal Measures: Kansas City and Lexington, Missouri.
1895. *Hustedia Mormonii*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 51, figs. 1-9.
Coal Measures: Near Kansas City, Missouri.
1897. *Retzia radialis*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 31.
Upper Coal Measures: Sebastian County, Arkansas, and Poteau Mountain,
Indian Territory.

Hustedia papillata Shumard.

1858. *Retzia papillata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 294.
White and Dark Permian L. S.: Guadalupe Mountains.
1859. *Retzia papillata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 395, pl. 11,
fig. 9.
Dark Permian L. S.: Guadalupe Mountains.

Hustedia triangularis Miller.

1892. *Retzia triangularis*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 61,
pl. 9, figs. 25, 26.
Chouteau L. S.: Sedalia, Missouri.
1894. *Retzia triangularis*. Miller, 18th Rep. Geol. Surv. Ind., p. 315, pl. 9, figs.
25, 26.
Chouteau L. S.: Sedalia, Missouri.

HYBOCHINUS Worthen and Miller, 1883.**Hybochinus spectabilis** Worthen and Miller.

1883. *Hybochinus spectabilis*. Worthen and Miller, Geol. Surv. Ill., vol. 7, p. 332,
pl. 31, figs. 5a-d, 6, 7.
Chester L. S.: Prairie du Long Creek, Monroe County, Illinois; Pope
County, Illinois.
1895. *Lepidesthes spectabilis*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 184.
Kaskaskia L. S.: Prairie du Long Creek, Monroe County, Illinois.

HYDREIONOCRINUS De Koninck, 1858.**Hydreionocrinus acanthophorus** Meek and Worthen.

1870. *Zeacrinus (Hydreionocrinus) acanthophorus*. Meek and Worthen, Proc. Acad.
Nat. Sci. Phil., p. 28.
Lower Coal Measures: Fulton County, Illinois.
1873. *Zeacrinus (Hydreionocrinus) acanthophorus*. Meek and Worthen, Geol. Surv.
Ill., vol. 5, p. 563, pl. 24, fig. 11.
Coal Measures: Seaville, Fulton County, Illinois.
1874. *Zeacrinus (Hydreionocrinus?) acanthophorus*. Meek, Am. Jour. Sci. (3),
vol. 7, p. 485.
1894. *Hydreionocrinus acanthophorus*. Keyes, Mo. Geol. Surv., vol. 4, p. 215.
Upper Coal Measures: Kansas City, Missouri.

Hydreionocrinus armiger Meek and Worthen.

1870. *Zeacrinus? armiger*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 27.
Chester Group: Pope County, Illinois.
1873. *Zeacrinus? armiger*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 547, pl. 21, fig. 3.
Chester Group: Pope County, Illinois.
- See also *Hydreionocrinus wetherbyi*.

Hydreionocrinus crassidiscus Miller and Gurley.

1894. *Hydreionocrinus crassidiscus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 43, pl. 6, figs. 18, 19.
Upper Coal Measures: Kansas City, Missouri.

Hydreionocrinus depressus Hall.

1858. *Zeacrinus depressus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 546, fig. 67.
1881. *Hydreionocrinus depressus*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 3, p. 325, pl. 9, figs. 1-4, 6.
Kaskaskia Group: Pulaski County, Kentucky.

Hydreionocrinus discus Meek and Worthen.

1860. *Zeacrinus discus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 390.
Upper Coal Measures: Sangamon County, Illinois.
1866. *Zeacrinus discus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 312, pl. 26, figs. 3a, b.
Coal Measures: Sugar Creek, Sangamon County, Illinois.

Hydreionocrinus granuliferus Miller and Gurley.

1894. *Hydreionocrinus granuliferus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 44, pl. 6, figs. 20, 21.
Upper Coal Measures: Kansas City, Missouri.

Hydreionocrinus mucrospinus McChesney.

1860. *Zeacrinus mucrospinus*. McChesney, Desc. New Pal. Foss., p. 10.
Coal Measures: Carlinville, Macoupin County, Illinois; Sangamon County, Illinois; Mouth of Rush Creek, Indiana.
1866. *Aottnocrinus* sp. Geinitz, Carb. und Dyas in Nebr., p. 64, Taf. 4, figs. 29a, b.
Plattsmouth and Bennett's Mill, Nebraska.
1868. *Zeacrinus mucrospinus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 7, pl. 4, figs. 7a, b.
Coal Measures: Carlinville, Illinois; Sangamon County, Illinois; Rush Creek, Indiana.
1872. *Zeacrinus? mucrospinus*. Meek, U. S. Geol. Surv. Nebr., p. 149, pl. 5, figs. 2a-c.
Upper Coal Measures: Bennett's Mill, Nebraska City, Plattsmouth, Cedar Bluff, and Omaha, Nebraska.
Coal Measures: Kansas, Iowa, Illinois, Missouri, Arkansas.
1873. *Zeacrinus? mucrospinus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 563, pl. 24, fig. 12.
Upper Coal Measures: Springfield, Illinois.
1894. *Hydreionocrinus mucrospinus*. Keyes, Mo. Geol. Surv., vol. 4, p. 216.
Upper Coal Measures: Kansas City, Missouri.
1897. *Hydreionocrinus mucrospinus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 26.
Upper Coal Measures: Poteau Mountain, Indian Territory.

Hydreionocrinus noduliferus Miller and Gurley.

1894. *Hydreionocrinus noduliferus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 41, pl. 6, figs. 15-17.
Upper Coal Measures: Kansas City, Missouri.

Hydreionocrinus pentagonus Miller and Gurley.

1890. *Hydreionocrinus pentagonus*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 17, pl. 2, figs. 6, 7.

Upper Coal Measures: Kansas City, Missouri.

1890. *Hydreionocrinus pentagonus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 339, pl. 2, figs. 6, 7.

Upper Coal Measures: Kansas City, Missouri.

1894. *Hydreionocrinus pentagonus*. Keyes, Mo. Geol. Surv., vol. 4, p. 215.

Upper Coal Measures: Kansas City, Missouri.

Hydreionocrinus sancti-ludovici Worthen.

1890. *Eupachyrcinus? sancti-ludovici*. Worthen, Geol. Surv. Ill., vol. 8, p. 98.

St. Louis L. S.: St. Louis, Missouri.

1894. *Hydreionocrinus sanctiludovici*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 40, pl. 6, fig. 2.

St. Louis Group: St. Louis, Missouri.

Hydreionocrinus subsinuatus Miller and Gurley.

1894. *Hydreionocrinus subsinuatus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 40, pl. 6, figs. 11-14.

Upper Coal Measures: Kansas City, Missouri.

Hydreionocrinus verrucosus. See *Eupachyrcinus verrucosus*.

Hydreionocrinus wetherbyi Wachsmuth and Springer.

1881. *Hydreionocrinus armiger*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 3, p. 328, pl. 9, figs. 7-11. Not *H. armiger* M & W. 1870.

Kaskaskia Group: Pulaski County, Kentucky.

1886. *Hydreionocrinus Wetherbyi*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 169. (Rev. Palæocr. III, p. 245.)

HYOLITHES Eichwald, 1840.**Hyolithes aculeatus** Hall.

1860. *Puginuculus? (Theca) aculeatus*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 107.

Goniatite L. S.: Rockford, Indiana.

1862. *Puginuculus (?) aculeatus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 423.

Marshall Group: Adams, Hillsdale County, Michigan.

1865. *Puginuculus ? aculeatus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 131.

Marshall Group: Hillsdale, Michigan.

Hyolithes carbonaria Walcott.

1884. *Hyolithes carbonaria*. Walcott, Pal. Eureka Dist., p. 264, pl. 23, fig. 3.

Lower Carboniferous: Eureka District, Nevada.

Hyolithes lanceolatus Miller.

1892. *Hyolithes lanceolatus*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 63, pl. 9, figs. 35, 36.

Chouteau L. S.: Sedalia, Missouri.

1894. *Hyolithes lanceolatus*. Miller, 18th Rep. Geol. Surv. Ind., p. 317, pl. 9, figs. 35, 36.

Chouteau L. S.: Sedalia, Missouri.

HYSTRIOSPONGIA Ulrich, 1890.**Hystriosporgia carbonaria** Ulrich.

1890. *Hystriosporgia carbonaria*. Ulrich, Geol. Surv. Ill., vol. 8, p. 245, pl. 6, fig. 3.

Base of Coal Measures: Seville, Illinois.

ICHTHYOCRINUS Conrad, 1842.

***Ichthyocrinus burlingtonensis* Hall.**

1858. *Ichthyocrinus burlingtonensis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 557.
Burlington L. S.: Burlington, Iowa.
1893. *Ichthyocrinus burlingtonensis*. Whitfield, Mem. Am. Mus. Nat. His., vol. 1, p. 35, pl. 3, fig. 24.
Burlington L. S.: Burlington, Iowa.
1894. *Ichthyocrinus burlingtonensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 223.
Burlington L. S.: Louisiana, Missouri.

***Ichthyocrinus clarkensis* Miller and Gurley.**

1894. *Ichthyocrinus clarkensis*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 43, pl. 4, fig. 5.
Keokuk or Warsaw Group: Clark County, Indiana.

***Ichthyocrinus greenii* Miller.**

1892. *Ichthyocrinus greenii*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 52, pl. 8, fig. 3.
Keokuk Group: Muldrough Hill, Kentucky.
1894. *Ichthyocrinus greenii*. Miller, 18th Rep. Geol. Surv. Ind., p. 306, pl. 8, fig. 3.
Keokuk Group: Muldrough Hill, Kentucky.

***Ichthyocrinus nobilis* Wachsmuth and Springer.**

1878. *Ichthyocrinus nobilis*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 254.
Upper Burlington L. S.: Near Burlington, Iowa.

***Ichthyocrinus spinosulus* Miller and Gurley.**

1894. *Ichthyocrinus spinosulus*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 44, pl. 5, fig. 4.
Knobstone Group: Clark County, Indiana.

***Ichthyocrinus tiaræformis* Hall.**

1858. *Ichthyocrinus tiaræformis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 558, fig. 71.
Carboniferous: White Creek Springs, Davidson County, Tennessee.

IGOCERAS Hall, 1859.

***Igoceras capulus* Hall.**

1860. *Platyceras ? capulus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 91.
Burlington L. S.: Quincy, Illinois; Burlington, Iowa.
1866. *Metoptoma (Platyceras ?) umbella*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 267.
Burlington L. S.: Quincy, Illinois, and Honey Creek, Henderson County, Illinois.
1868. *Metoptoma ? umbella*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 506, pl. 15, figs. 6a-c, 7.
Burlington L. S.: Quincy, Illinois; Honey Creek, Henderson County, Illinois.
1889. *Metoptoma ? umbella*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 292.
Burlington L. S.: Burlington, Iowa.
1890. *Platyceras capulus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 179.
1892. *Igoceras capulus*. Keyes, Am. Jour. Sci., vol. 10, p. 276.
1894. *Igoceras capulus*. Keyes, Mo. Geol. Surv., vol. 5, p. 183, pl. 52, figs. 1a, b.
Burlington L. S.: Hannibal and Ritter's Station, Missouri.

***Igoceras fissurella* Hall.**

1860. *Platyceras fissurella*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 90.
Keokuk L. S.: Nauvoo, Illinois.

***Igoceras fissurella* Hall—Continued.**

1873. *Platyceras fissurella*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 519, pl. 17, fig. 4.
Keokuk Group: Warsaw and Nauvoo, Illinois.
1889. *Platyceras fissurella*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 289.
Burlington L. S.: Burlington, Iowa.
1890. *Capulus fissurella*. Keyes, Am. Geol., vol. 6, p. 9.
1890. *Capulus fissurella*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 173.
Keokuk L. S.: Warsaw and Nauvoo, Illinois.
Burlington L. S.: Burlington, Iowa.
1892. *Igoceras fissurellum*. Keyes, Am. Geol., vol. 10, p. 276.
1894. *Igoceras fissurella*. Keyes, Mo. Geol. Surv., vol. 5, p. 186, pl. 52, fig. 2.
Burlington L. S.: Burlington, Iowa.
Keokuk L. S.: Warsaw and Nauvoo, Illinois.

***Igoceras pabulocrinus* Owen.**

1860. *Platyceras subrectum*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 89. (Not *P. subrectum* Hall, 1859.)
Keokuk L. S.: Keokuk, Iowa; Warsaw, Illinois.
1862. *Pileopsis pabulocrinus*. Owen, Geol. Recon. Ind., p. 364; fig. 8.
Carboniferous: Crawfordsville, Indiana.
1866. *Platyceras (Orthonychia) infundibulum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 266.
Keokuk Group: Warsaw, Illinois.
1866. *Platyceras (Orthonychia) extinctor*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 266.
Keokuk Group: Warsaw, Illinois.
1873. *Platyceras infundibulum*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 517, pl. 17, fig. 3.
Keokuk Group: Warsaw, Illinois.
1888. *Platyceras infundibulum*. Keyes, Proc. Am. Phil. Soc., vol. 25, p. 242, pl., fig. 1.
1889. *Platyceras infundibulum*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 289.
Burlington L. S.: Burlington, Iowa.
1890. *Capulus infundibulum*. Keyes, Am. Geol., vol. 6, p. 9.
1890. *Capulus infundibulum*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 174, pl. 2, fig. 10.
Keokuk Group: Keokuk, Iowa; Warsaw, Illinois; Crawfordsville, Indiana.
Burlington L. S.: Burlington, Iowa.
1892. *Igoceras pabulocrinus*. Keyes, Am. Geol., vol. 10, p. 276.
1894. *Igoceras pabulocrinus*. Keyes, Mo. Geol. Surv., vol. 5, p. 184, pl. 52, figs. 3a, b; pl. 54, figs. 3a, b.
Burlington L. S.: Burlington, Iowa; Springfield, Missouri.
Keokuk L. S. and Shales: Keokuk, Iowa; Warsaw, Illinois; Crawfordsville, Indiana.

***Igoceras quincyense* McChesney.**

1861. *Platyceras Quincyensis*. McChesney, Desc. New. Spec. Pal. Foss., p. 90.
Subcarboniferous L. S.: Near Quincy, Illinois.
1865. *Platyceras Quincyensis*. McChesney, Ill. New Spec. Foss., pl. 6, figs. 6a, b.
1868. *Platyceras quincyense*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 49, pl. 6, figs. 6a, b.
Subcarboniferous: Quincy, Illinois.
1868. *Platyceras (Orthonychia) Quincyense*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 510, pl. 15, figs. 5a, b.
Burlington L. S.: Quincy, Illinois.
1868. *Platyceras (Orthonychia) Quincyense*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 290.
Burlington L. S.: Burlington, Iowa.

Igoceras quincyense McChesney—Continued.

1889. *Platyceras quincyense*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 290.
Burlington L. S.: Burlington, Iowa.
1890. *Capulus quincyensis*. Keyes, Am. Geol., vol. 6, p. 9.
1890. *Capulus quincyensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 168, pl. 2, fig. 9.
Burlington L. S.: Burlington, Iowa.
1891. *Platyceras pettisense*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 81,
pl. 14, fig. 1.
Burlington Group: Sedalia, Missouri.
1891. *Platyceras missouriense*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind.,
p. 82, pl. 14, fig. 2.
Burlington Group: Sedalia, Missouri.
1892. *Platyceras pettisense*. Miller, 17th Rep. Geol. Surv. Ind., p. 691, pl. 14, fig. 1.
Burlington Group: Sedalia, Missouri.
1892. *Platyceras missouriense*. Miller, 17th Rep. Geol. Surv. Ind., p. 692, pl. 14,
fig. 2.
Burlington Group: Sedalia, Missouri.
1892. *Igoceras quincyense*. Keyes, Am. Geol., vol. 10, p. 276.
1894. *Igoceras quincyense*. Keyes, Mo. Geol. Surv., vol. 5, p. 182, pl. 53, figs. 10a, b,
Burlington L. S.: Quincy, Illinois; Sedalia, Missouri.

Igoceras subplicatum Meek and Worthen.

1866. *Platyceras (Orthonychia) subplicatum*. Meek and Worthen, Proc. Acad. Nat.
Sci. Phil., p. 265.
Chester Group: Pope County and Chester, Illinois.
1868. *Platyceras (Orthonychia) subplicatum*. Meek and Worthen, Geol. Surv. Ill.,
vol. 3, p. 457, pl. 14, figs. 4a-c.
Waverly Group: Richfield, Ohio.
1890. *Capulus subplicatum*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 166.
Kinderhook beds: Richfield, Ohio.
1892. *Igoceras subplicatum*. Keyes, Am. Geol., vol. 10, p. 276.
1894. *Igoceras subplicatum*. Keyes, Mo. Geol. Surv., vol. 5, pl. 53, fig. 5.

ILYODES Scudder 1890.**Ilyodes divisa** Scudder.

1890. *Ilyodes divisa*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 422, pl. 38, fig. 1.
Carboniferous: Mazon Creek, Illinois.
1890. *Ilyodes divisa*. Scudder, Foss. Insc. N. A., vol. 1, p. 398, pl. 30, fig. 1.
Carboniferous: Mazon Creek, Illinois.

Ilyodes elongata Scudder.

1890. *Ilyodes elongata*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 423, pl. 38,
fig. 2.
Carboniferous: Mazon Creek, Illinois.
1890. *Ilyodes elongata*. Scudder, Foss. Insc. N. A., vol. 1, p. 399, pl. 30, fig. 2.
Carboniferous: Mazon Creek, Illinois.

ISOCARDIA Klein, 1753.**Isocardia curta** Shumard.

1858. *Isocardia (?) curta*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 206.
Coal Measures: Charbonniere, St. Louis County, Missouri.

Isocardia jennæ Winchell.

1863. *Isocardia ? jennæ*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 17.
Yellow S. S.: Burlington, Iowa.

Isocardia (species undetermined).

1868. *Isocardia* (like *I. transversa*). Dawson, Acad. Geol., p. 304.
Carboniferous L. S.: East River, Pictou.

KIRKBYA Jones, 1869.**Kirkbya costata** Ulrich.

1891. *Kirkbya* (? *Barychilina*) *costata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13,
p. 208, pl. 18, figs. 2a, b.
St. Louis Group: Columbia, Illinois.

Kirkbya lindahli Ulrich.

1891. *Kirkbya lindahli*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 207, pl. 18,
figs. 6a-c.
St. Louis Group: Columbia, Illinois.

Kirkbya oblonga var. Ulrich.

1891. *Kirkbya oblonga* J. & K. var. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13,
p. 206, pl. 18, figs. 4a, b, 5a, b.
Chester Group: Chester, Illinois; near Grayson Springs, Kentucky.

Kirkbya tricollina Ulrich.

1891. *Kirkbya tricollina*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 207, pl. 18,
figs. 8a, b.
Chester Group: Near Grayson Springs and Litchfield, Kentucky.

Kirkbya venosa Ulrich.

1891. *Kirkbya venosa*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 208, pl. 18,
figs. 3a, b.
Chester Group: Near Grayson Springs, Kentucky.

(KONINCKIA Suess, 1853.)

Koninckia americana. See *Productus swallowi*.

KONINCKIOCERAS Hyatt, 1883.**Koninckioceras scottense** Worthen.

1890. *Temnocheilus scottense*. Worthen, Geol. Surv. Ill., vol. 8, p. 151, pl. 27,
figs. 3, 3a.
Warsaw L. S.: Near Winchester, Scott County, Illinois.
1893. *Koninckioceras* (*Temnocheilus*) *scottense*. Hyatt, 4th Ann. Rep. Geol. Surv.
Tex., p. 440.

KUSTARACHNE Scudder, 1890.**Kustarachne tenuipes** Scudder.

1890. *Kustarachne tenuipes*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 450,
pl. 40, fig. 7.
Carboniferous: Mazon Creek, Illinois.
1890. *Kustarachne tenuipes*. Scudder, Foss. Insc. N. A., vol. 1, p. 426, pl. 32,
fig. 7.
Carboniferous: Mazon Creek, Illinois.

LASIOCLADIA Hinde, 1884.**Lasiocladia hindei** Ulrich.

1890. *Lasiocladia hindei*. Ulrich, Geol. Surv. Ill., vol. 8, p. 249.
Keokuk Group: Nauvoo, Illinois; Keokuk, Iowa; King's Mountain tunnel,
Cincinnati Southern Railroad, Lincoln County, Kentucky.

LATZELIA Scudder, 1890.

Latzelia primordialis Scudder.

1890. *Latzelia primordialis*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 419, pl. 38, fig. 3.
Carboniferous: Mazon Creek, Illinois.
1890. *Latzelia primordialis*. Scudder, Foss. Insc. N. A., vol. 1, p. 395, pl. 30, fig. 3.
Carboniferous: Mazon Creek, Illinois.

LEAIA Jones, 1862.

Leaia leidyi Lea.

1855. *Cypricardia Leidy*. Lea, Proc. Acad. Nat. Soc. Phil., p. 341, pl. 4, figs. 1, 2.
Red Sandstone: Tumbling River Dam, near Pottsville, Pennsylvania.
1862. *Leaia Leidy*. Jones, Monog. Foss. Estheriæ (Pal. Soc., vol. 14), p. 116, pl. 5, figs. 11, 12.
Carboniferous: Near Pottsville, Pennsylvania.
1883. *Leaia Leidy*. Packard, 12th Ann. Rep. U. S. G. and G. Surv. Terr., p. 358, fig. 24.
Red Sandstone: Near Pottsville, Pennsylvania.

Leaia leidy var. salteriana Jones.

1862. *Leaia Leidy var. Salteriana*. Jones, Monog. Foss. Estheriæ (Pal. Soc., vol. 14), p. 119, pl. 1, fig. 21.
1868. *Leaia Leidy*. Dawson, Acad. Geol., p. 256, fig. 78e.
Carboniferous: Horton Bluff, Nova Scotia.
1884. *Leaia Leidy var. Salteriana*. Jones and Kirkby, Geol. Mag. (3), vol. 1, p. 362, pl. 12, fig. 13.
Lower Carboniferous: Horton, Nova Scotia.

Leaia tricarinata Meek and Worthen.

1868. *Leaia tricarinata*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 541, figs. B1-3, C.
Coal Measures: Lasalle, St. Clair, and Vermilion counties, Illinois.
1884. *Leaia tricarinata*. White, 13th Rep. Geol. Surv. Ind., p. 167, pl. 39, figs. 10-13.
Coal Measures: Patty's Ford of Little Vermilion River, west of Eugene, Brouillet's Creek, Vermilion County, Indiana.

LECYTHIOCRINUS White, 1880.

Lecythiocrinus adamsi Worthen.

1882. *Lecythiocrinus adamsi*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 37.
Lower Coal Measures: Peoria County, Illinois.
1883. *Lecythiocrinus Adamsi*. Worthen, Geol. Surv. Ill., vol. 7, p. 317, pl. 31, fig. 8.
Lower Coal Measures: Peoria County, Illinois.

Lecythiocrinus olliculæformis White.

1880. *Lecythiocrinus olliculæformis*. White, Proc. U. S. Nat. Mus., vol. 2, p. 257, pl. 1, figs. 4, 5.
Upper Coal Measures: 30 miles west of Humboldt, Kansas.
1880. *Lecythiocrinus olliculæformis*. White, Cont. to Pal., No. 6, p. 124, pl. 35, figs. 2a, b.
Upper Coal Measures: 30 miles west of Humboldt, Kansas.
1894. *Lecythiocrinus olliculæformis*. Keyes, Mo. Geol. Surv., vol. 4, p. 208, pl. 25, fig. 13.
Upper Coal Measures: Kansas City, Missouri.

(LEDA Schumacher, 1817.)

- Leda barrisi.* See *Palaeoneilo sulcatina*.
Leda bellistriata. See *Nuculana bellistriata*.
Leda curta. See *Nuculana curta*.
Leda dens-mamillata. See *Nuculana dens-mamillata*.
Leda diversa. See *Nuculana diversa*.
Leda gibbosa. See *Yoldia rushensis*.
Leda knoxensis. See *Yoldia knoxensis*.
Leda leistriata. See *Yoldia levistriata*.
Leda nasuta. See *Nuculana nasuta*.
Leda nuculaeformis. See *Palaeoneilo sulcatina*.
Leda ohioensis. See *Nuculana pandoriformis*.
Leda oweni. See *Yoldia oweni*.
Leda pandoriformis. See *Nuculana pandoriformis*.
Leda polita. See *Yoldia knoxensis*.
Leda rushensis. See *Yoldia rushensis*.
Leda saccata. See *Nuculana saccata*.
Leda subscitula. See *Yoldia subscitula*.

LEIOCLEMA Ulrich, 1882.

Leioclema araneum Ulrich.

1890. *Leioclema ? araneum.* Ulrich, Geol. Surv. Ill., vol. 8, p. 431, pl. 75, figs. 9-9c.
 Chester Group: Monroe County, and Chester, Illinois; Pulaski and Jackson counties, Kentucky.
 1894. *Leioclema araneum.* Keyes, Mo. Geol. Surv., vol. 5, p. 14.
 Chester Shales: Ste. Genevieve, Missouri; Chester, Illinois.

Leioclema foliatum Ulrich.

1890. *Leioclema foliatum.* Ulrich, Geol. Surv. Ill., vol. 8, p. 431, fig. 1, p. 301.
 Warsaw Beds: Warsaw, Illinois.
 1894. *Leioclema foliatum.* Keyes, Mo. Geol. Surv., vol. 5, p. 14.
 Keokuk Group: Warsaw, Illinois.

Leioclema gracillimum Ulrich.

1888. *Leioclema gracillimum.* Ulrich, Bull. Den. Univ., vol. 4, p. 92.
 Waverly Group: Lodi, Ohio.
 1890. *Leioclema gracillimum.* Ulrich, Geol. Surv. Ill., vol. 8, p. 429, pl. 75, figs. 6-6b.
 Kinderhook Group: Marshalltown, Iowa.
 Burlington Group: Burlington, Iowa.
 Keokuk Group: At most localities.
 Warsaw Beds: Warsaw, Illinois.
 1894. *Leioclema gracillimum.* Keyes, Mo. Geol. Surv., vol. 5, p. 13.
 Burlington L. S.: Hannibal, Missouri.
 Keokuk L. S.; Clark County, Missouri; Keokuk, Iowa; Warsaw, Illinois.

Leioclema punctatum Hall.

1858. *Callopora punctata.* Hall, Geol. Iowa, vol. 1, pt. 2, p. 653.
 Warsaw L. S.: Keokuk, Iowa; Warsaw, Illinois.
 1866. *Callopora missouriensis.* Rominger, Proc. Acad. Nat. Sci. Phil., p. 117.

Leioclema punctatum Hall—Continued.

1882. *Leioclema punctata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 5, p. 141, pl. 6, figs. 1, 1a.
 1888. *Leioclema punctatum*. Ulrich, Bull. Den. Univ., vol. 4, p. 91.
 Waverly Group: Cuyahoga Valley, Ohio.
 1890. *Leioclema punctatum*. Ulrich, Geol. Surv. Ill., vol. 8, p. 430.
 Keokuk L. S.: Keokuk, Iowa; Warsaw, Illinois; Lagrange, Missouri;
 King's Mountain, Kentucky.
 1894. *Leioclema punctatum*. Keyes, Mo. Geol. Surv., vol. 5, p. 13.
 Keokuk L. S.: Lagrange and Wayland, Missouri; Illinois and Iowa.

Leioclema subglobosum Ulrich.

1890. *Leioclema subglobosum*. Ulrich, Geol. Surv. Ill., vol. 8, p. 428, pl. 75, figs. 8-8b.
 Kinderhook Group: Marshalltown, Iowa.

Leioclema wachsmuthi Ulrich.

1890. *Leioclema wachsmuthi*. Ulrich, Geol. Surv. Ill., vol. 8, p. 428, pl. 75, figs. 7-7b.
 Kinderhook Group: Marshalltown, Iowa.

LEIOPTERIA Hall, 1883.**Leiopteria cuyahoga Herrick.**

1891. *Leiopteria cuyahoga*. Herrick, Bull. Geol. Soc. Am., vol. 2, p. 44, pl. 1, fig. 7.
 Waverly Group: Cuyahoga Falls, Ohio.

Leiopteria halli Herrick.

1888. *Leiopteria halli*. Herrick, Bull. Den. Univ., vol. 3, p. 61, pl. 7, figs. 31, 32.
 Waverly Group: Licking County, Ohio.
 1895. *Leiopteria halli*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 8.
 Kinderhook Group: Granville, Ohio.

Leiopteria nasutus. See *Leioptodesina nasutus*.**Leiopteria newberryi Herrick.**

1888. *Leiopteria* ? *newberryi*. Herrick, Bull. Den. Univ., vol. 4, p. 114, pl. 11, fig. 31.
 Waverly Group: Ohio.

Leiopteria ortonii Herrick.

1888. *Leiopteria ortonii*. Herrick, Bull. Den. Univ., vol. 3, p. 60, pl. 7, fig. 1.
 Waverly Group: Licking County, Ohio.
 1888. *Leiopteria* (*Leptodesma*) *ortonii*. Herrick, Bull. Den. Univ., vol. 4, pl. 5, fig. 4.
 Waverly Group: Ohio.
 1889. *Leiopteria* (*Leptodesma*) *ortonii*. Herrick, Am. Geol., vol. 3, pl. 3, fig. 4.
 1895. *Leiopteria* (*Leptodesma*) *ortonii*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 1.
 Upper Cuyahoga Shale: Licking County, Ohio.
 1895. *Leiopteria* (variety of) *ortonii*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 10.
 Kinderhook Group: Ohio.
 1895. *Leiopteria ortonii*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 12.
 Cuyahoga Shale: Ohio.

Leiopteria speciosa Miller and Gurley.

1896. *Leiopteria speciosa*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 13, pl. 2, fig. 10.
 Chouteau L. S.: Near Sedalia, Missouri.

Leiopteria subovata Miller and Gurley.

1896. *Leiopteria subovata*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 13, pl. 2, figs. 7-9.
 Chouteau L. S.: Near Sedalia, Missouri.

Leiopteria (species undetermined).

1888. *Leiopteria* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 5, figs. 5, 8.
Waverly Group: Ohio.
1889. *Leiopteria* sp. Herrick, Am. Geol., vol. 3, pl. 3, figs. 3, 8.
1895. *Leiopteria* sp? Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 9.
Kinderhook Group: Granville, Ohio.

LEIORHYNCHUS Hall, 1860.**Leiorhynchus ? boonensis** Shumard.

1855. *Rhynchonella Boonensis*. Shumard, Geol. Rep. Mo., p. 205, pl. C, figs. 6a, b.
Encrinital L. S.: Near Columbia, Boone County, Missouri.
1894. *Rhynchonella boonensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 101.
Burlington L. S.: Columbia, Missouri.
1895. *Leiorhynchus* (?) *Boonensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 60,
fig. 35.
Chouteau L. S.: Cooper County, Missouri.

Leiorhynchus quadricostatus Vanuxem.

1842. *Orthis quadricostata*. Vanuxem, Geol. of N. Y., Rep. on 3d Dist., p. 168,
fig. 2.
Genesee Slate.
1867. *Leiorhynchus quadricostata*. Hall, Pal. N. Y., vol. 4, p. 357, pl. 56, figs. 44-49.
Genesee Slate: Seneca and Cayuga Lakes, New York.
1877. *Leiorhynchus quadricostatus*? Meek, U. S. Geol. Expl. 40th Par., vol. 4, p. 79,
pl. 3, figs. 9-9b.
Carboniferous: White Pine Mountains, Nevada.
1895. *Liorhynchus quadricostatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 59,
figs. 21, 22.

LEPERDITIA Ronault, 1851.**Leperditia carbonaria** Hall.

1856. *Cythere carbonaria*. Hall, Trans. Albany Inst., vol. 4, p. 33.
St. Louis L. S.: Spergen Hill, Indiana.
1882. *Leperditia carbonaria*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 94,
pl. 9, figs. 24-27.
St. Louis Group: Spergen Hill and Bloomington, Indiana.
1883. *Leperditia carbonaria*. Hall, 12th Rep. Geol. Surv. Ind., p. 375, pl. 32,
figs. 24-27.
St. Louis Group: Spergen Hill, Bloomington, and Lanesville, Indiana.

Leperditia nicklesi Ulrich.

1891. *Leperditia nicklesi*. Ulrich, Jour. Ciun. Soc. Nat. Hist., vol. 13, p. 200; pl. 18,
figs. 1a-e.
St. Louis Group: Columbia, Monroe County, Illinois.

Leperditia okeni Münster.

- *1865. *Leperditia Okeni*. Jones and Kirkby, Ann. Mag. Nat. Hist. (3), vol. 15, p. 406,
pl. 20, figs. 1-3.
1884. *Leperditia Okeni*. Jones and Kirkby, Geol. Mag. (3), vol. 1, p. 356, pl. 12,
fig. 3.
Lower Coal Measures: Horton, Nova Scotia.

Leperditia okeni var. acuta Jones and Kirkby.

- *1865. *Leperditia Okeni* var. *acuta*. Jones and Kirkby, Ann. Mag. Nat. Hist., (3),
vol. 15, p. 406.
1868. *Cyphere*. Dawson, Acad. Geol., p. 206, fig. 48c.
Carboniferous: Nova Scotia.

***Leperditia okeni* var. *acuta* Jones and Kirkby—Continued.**

1884. *Leperditia Okeni* var. *acuta*. Jones and Kirkby, Geol. Mag., (3), vol. 1, p. 357, pl. 12, figs. 4a, b.
Coal Measures: Joggins, Nova Scotia.

***Leperditia okeni* var. *scotoburdigalensis* Hibbert.**

1868. *Leperditia Okeni*. Dawson, Acad. Geol., p. 256, fig. 78b.
Carboniferous: Horton, Nova Scotia.
*1884. *Leperditia Scotoburdigalensis*. Hibbert, Proc. Berwicksh. Nat. Club, vol. 4, p. 321.
1884. *Leperditia Okeni* var. *Scotoburdigalensis*. Jones and Kirkby, Geol. Mag., (3), vol. 1, p. 357, pl. 12, figs. 1, 2.
Lower Coal Measures: Horton, Nova Scotia.

LEPETOPSIS Whitfield, 1882.***Lepetopsis chesterensis* Worthen.**

1884. *Lepetopsis chesterensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 25.
Lower Chester L. S.: Chester, Illinois.
1890. *Lepetopsis chesterensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 140, pl. 25, figs. 1, 1a.
Chester L. S.: Chester, Illinois.

***Lepetopsis levettei* White.**

1882. *Patella levettei*. White, 11th Rep. Geol. Surv. Ind., p. 359, pl. 39, figs. 4, 5.
St. Louis Group: Spergen Hill, Indiana.
1882. *Lepetopsis Levettei*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 68, pl. 8, figs. 9-12.
St. Louis Group: Spergen Hill, Indiana.

***Lepetopsis parrishi* Gurley.**

1884. *Lepetopsis Parrishi*. Gurley, New Carb. Foss. Bull. No. 2, p. 7.
Upper Coal Measures: Kansas City, Missouri.

***Lepetopsis* (species undetermined).**

1891. *Patella ?*—? White, Bull. U. S. Geol. Surv., No. 77, p. 25, pl. 3, fig. 14.
Permian: Goodwin Creek, Baylor County, Texas.

LEPIDECHINUS Hall, 1861.***Lepidechinus imbricatus* Hall.**

- *1861. *Lepidechinus imbricatus*. Hall, Desc. New Spec. Crin., p. 18.
Burlington L. S.
1895. *Lepidechinus imbricatus*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 192.
Burlington L. S.: Burlington, Iowa.

***Lepidechinus rarispinus* Hall.**

1867. *Lepidechinus rarispinus*. Hall, 20th Rep. N. Y. State Cab. Nat. Hist., p. 295, pl. 9, fig. 10.
Chemung S. S.: Meadville, Pennsylvania.
Ferruginous S. S.: Licking County, Ohio.
1870. *Lepidechinus rarispinus*. Hall, 20th Rep. N. Y. State Cab. Nat. Hist., (rev. ed.), p. 340, pl. 9, fig. 10.
Chemung S. S.: Meadville, Pennsylvania.
Waverly S. S.: Licking County, Ohio.
1895. *Lepidechinus rarispinus*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 192.
Chemung S. S.: Meadville, Pennsylvania.
Waverly S. S.: Licking County, Ohio.

Lepidechinus rarispinus Hall—Continued.

1896. *Lepidechinus rarispinus*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 226, pl. 7, fig. 42.

Waverly S. S.: Warren, Pennsylvania.

Lepidechinus squamosus Keyes. See *Lepidocidaris squamosus*.

LEPIDESTHES Meek and Worthen, 1868.

Lepidesthes colletti White.

1878. *Lepidesthes Colletti*. White, Proc. Acad. Nat. Sci. Phil., p. 33.
Keokuk Group: Salem, Washington County, Indiana.
1880. *Lepidesthes colletti*. White, Cont. to Inv. Pal., No. 8, p. 163, pl. 40, figs. 2a, b.
Keokuk Group: Salem, Washington County, Indiana.
1882. *Lepidesthes colletti*. White, 11th Rep. Geol. Surv. Ind., p. 362, pl. 41, figs. 2, 3.
Keokuk Group: Salem, Washington County, Indiana.
1895. *Lepidesthes colletti*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 184.
Keokuk Shales: Salem, Washington County, Indiana.
1896. *Lepidesthes colletti*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 210.

Lepidesthes coreyi Meek and Worthen.

1868. *Lepidesthes Corryi*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 525, fig. A.
Keokuk Group: Crawfordsville, Indiana.
1873. *Lepidesthes Coreyi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 16, figs. 2a, b.
1895. *Lepidesthes coreyi*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 184.
Keokuk Shales: Crawfordsville, Indiana.
1896. *Lepidesthes coreyi*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 209.

Lepidesthes formosus Miller.

1879. *Lepidesthes formosus*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 41, pl. 8, fig. 4.
Kaskaskia Group: Pulaski County, Kentucky.
1895. *Lepidesthes formosus*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 184.
Keokuk Shales: Crawfordsville, Indiana.
1896. *Lepidesthes formosus*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 210.

Lepidesthes spectabilis Keyes. See *Hybochinus spectabilis*.

Lepidesthes wortheni Jackson.

1896. *Lepidesthes wortheni*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 207, pl. 9, fig. 53.
Keokuk Group: Crawfordsville, Indiana. (?)

LEPIDOCIDARIS Meek and Worthen, 1873.

Lepidocidaris squamosus Meek and Worthen.

1869. *Eocidaris ? squamosa*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 79.
Lower Burlington L. S.: Burlington, Iowa.
1873. *Eocidaris ? squamosus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 478, pl. 9, fig. 15.
Burlington L. S.: Burlington, Iowa.
1895. *Lepidechinus squamosus*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 193.
Burlington, L. S.: Burlington, Iowa.
1896. *Lepidocidaris squamosus*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 220, pl. 7, fig. 41.
Lower Burlington L. S.: Burlington, Iowa.

(LEPIDOCENTRUS Müller, 1856.)

Lepidocentrus irregularis Meek and Worthen. See *Pholidocidaris irregularis*.

LEPTÆNA Dalman, 1827.

Leptæna analoga Phillips.

1863. *Strophomena analoga*. Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 173, pl. 9, fig. 18.
Lower Carboniferous L. S.: Nova Scotia.
1868. *Strophomena analoga*. Dawson, Acad. Geol., p. 295, fig. 95.
Carboniferous L. S.: Nova Scotia.

Leptæna rhomboidalis Wilkins.

1874. *Strophomena rhomboidalis* White, Prelim. Rep. Inv. Foss., p. 17.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
1877. *Strophomena rhomboidalis*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 85, pl. 5, fig. 5.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
1877. *Strophomena rhomboidalis*. Hall and Whitfield, U. S. Geol. Expl., 40 Par., vol. 4, p. 258, pl. 4, fig. 4.
Waverly Group: Dry Canyon, Oquirrh Mountains, Utah.
1888. *Strophomena rhomboidalis*. Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 6.
Shales above Berea Grit: Central College, Ohio.
1889. *Strophomena rhomboidalis*. Herrick, Am. Geol., vol. 3, pl. 4, fig. 6.
1892. *Leptaena rhomboidalis*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 13, fig. 9.
Waverly Group: Mallet's Creek, Ohio.
1892. *Leptaena rhomboidalis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 8, figs. 30-31, pl. 20, fig. 24.
Waverly Group: Mallet's Creek, Ohio, and Medina County, Ohio.
1894. *Plectambonites rhomboidalis*. Keyes, Mo. Geol. Surv., vol. 5, p. 70, pl. 39, fig. 6.
Chouteau L. S.: Curryville, Missouri.
Burlington L. S.: Louisiana, Missouri.
1895. *Strophomena rhomboidalis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 6.
Bedford Shales: Central College, Ohio.

LEPTODESMA Hall, 1883.

Leptodesma nasutus Herrick.

1888. *Leiopteria nasutus*. Herrick, Bull. Den. Univ., vol. 4, p. 29, pl. 11, fig. 30.
Waverly Group: Bagdad, Medina County, Ohio.
1891. *Leptodesma nasutus*. Herrick, Bull. Geol. Soc. Am., vol. 2, p. 44, pl. 1, fig. 6.
Waverly Group: Burbank, Ohio.

Leptodesma scutella Herrick.

1888. *Leptodesma* (?) *scutella*. Herrick, Bull. Den. Univ., vol. 3, p. 59, pl. 4, fig. 16.
Waverly Group: Licking County, Ohio.
1888. *Avicula* (*Leptodesma*) *scutella*. Herrick, Bull. Den. Univ., vol. 4, p. 30, pl. 5, fig. 6.
Middle Waverly Group: Ohio.
1889. *Leptodesma scutella*. Herrick, Am. Geol., vol. 3, pl. 3, fig. 6.
1895. *Leptodesma scutella*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 11.
Kinderhook Group: Ohio.

Leptodesma (species undetermined.)

1884. *Leptodesma*, sp. ? Walcott, Pal. Eureka Dist., p. 234.
Lower Carboniferous: Eureka District, Nevada.

(LEPTODOMUS McCoy, 1844.)

Leptodomus granosus. See *Allorisma granosum*.

Leptodomus magnus. See *Schizodus magnus*.

Leptodomus topekaensis. See *Sedgwickia topekensis*.

LEPTOPORA Winchell, 1863.

Leptopora expansa. See *Leptopora typa*.

Leptopora gorbyi. See *Leptopora typa*.

Leptopora typa Winchell.

1863. *Leptopora typa*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 3.

Yellow S. S.: Burlington, Iowa.

✓ 1880. *Leptopora typa*. White, Cont. to Inv. Pal., No. 6, p. 122, pl. 34, figs. 12a, b.
Subcarboniferous: Burlington, Iowa.

✓ 1880. *Michilinia? placenta*. White, Cont. to Inv. Pal., No. 8, p. 157, pl. 39,
figs. 1a-d.

Top of Chouteau L. S.: Sedalia, Missouri.

✓ 1880. *Michilinia expansa*. White, Cont. to Inv. Pal., No. 8, p. 158, pl. 39, figs. 2a, b.
Top of Chouteau L. S.: Sedalia, Missouri.

1891. *Leptopora gorbyi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 6,
pl. 1, figs. 1-4.

Chouteau L. S.: Near Sedalia, Missouri.

1892. *Leptopora gorbyi*. Miller, 17th Rep. Geol. Surv. Ind., p. 616, pl. 1, figs. 1-4.
Chouteau L. S.: Near Sedalia, Missouri.

1894. *Cleistopora placenta*. Keyes, Mo. Geol. Surv., vol. 4, p. 119, pl. 14, fig. 11.
Chouteau L. S.: Sedalia and Curryville, Missouri.

1894. *Cleistopora typa*. Keyes, Mo. Geol. Surv., vol. 4, p. 119.
Kinderhook: Sedalia, Missouri.

Leptopora winchelli White.

1879. *Leptopora winchelli*. White, Bull. U. S. Geol. and Geog. Surv. Terr., vol. 5,
p. 211.

Carboniferous: Near the forks of Logan River, in Bear River Range, north-
ern Utah.

1880. *Leptopora winchelli*. White, Cont. to Inv. Pal., No. 6, p. 121, pl. 34, fig. 11a.
Carboniferous: Near the Forks of Logan River, in Bear River Range, north-
ern Utah.

LEUROCERAS Hyatt.

Leuroceras chesterensis Meek and Worthen.

1860. *Nautilus Chesterensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 469.
Chester L. S.: Chester, Illinois.

1866. *Nautilus chesterensis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 306,
pl. 24, figs. 4a, b.

Chester Group: Chester, Illinois.

1893. *Nautilus chesterensis*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 438.

(LIBELLULA Linneus.)

Libellula carbonaria Scudder. See *Graecophonus carbonarius*.

LIMA Brugueire, 1791.

Lima chesterensis Worthen.

1890. *Lima chesterensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 120, pl. 22, fig. 7.
Chester Shale: Chester, Illinois.

Lima menardi. See *Aviculopecten menardi*.

***Lima retifera* Shumard.**

- 1858. *Lima retifera*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 214.
Coal Measures: Valley of Verdigris, Kansas.
- 1866. *Lima retifera*? Geinitz, Carb. und Dyas in Nebr., p. 36, tab. 2, figs. 20, 21.
Nebraska City, Nebraska.
- 1872. *Lima retifera*. Meek, U. S. Geol. Surv. Nebr., p. 188, pl. 9, fig. 5.
Upper Coal Measures: Nebraska City, Nebraska; Verdigris River, Kansas.
Coal Measures: Illinois.
- 1873. *Lima retifera*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 588, pl. 26, fig. 2.
Coal Measures: Springfield, Illinois.
- 1884. *Lima retifera*. White, 13th Rep. Geol. Surv. Ind., p. 138, pl. 28, fig. 4.
Coal Measures: Knox, Gibson, and Posey counties, Indiana.
- 1887. *Lima retifera*. Herrick, Bull. Den. Univ., vol. 2, p. 29, pl. 4, fig. 25; pl. 5,
fig. 3.
Coal Measures: Flint Ridge, Ohio.
- 1891. *Lima retifera*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 248.
Lower Coal Measures: Des Moines, Iowa.
- 1894. *Lima retifera*. Keyes, Mo. Geol. Surv., vol. 5, p. 108, pl. 42, fig. 1.
Coal Measures: Clinton and Kansas City, Missouri.
- 1897. *Lima retifera*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 34.
Upper Coal Measures: Poteau Mountain, Indian Territory.

LIMATULINA de Koninck, 1885.

***Limatulina ohioensis* Herrick.**

- 1888. *Limatulina (?) ohioensis*. Herrick, Bull. Den. Univ., vol. 3, p. 55, pl. 2,
fig. 20; pl. 3, fig. 10.
Waverly Group: Licking County, Ohio.
- 1895. *Limatulina ? ohioensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 19.
Burlington Group: Licking County, Ohio.

LINGULA Bruguiere, 1792.

***Lingula atra* Herrick.**

- 1888. *Lingula atra*. Herrick, Bull. Den. Univ., vol. 4, p. 16, pl. 10, fig. 30.
Waverly Group: Above junction of Cuyahoga and Little Cuyahoga
rivers, Ohio.
- 1895. *Lingula atra*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, figs. 5, 6.
Cuyahoga or Berea Shales: Cuyahoga River, Ohio.

***Lingula carbonaria* Shumard.**

- 1858. *Lingula carbonaria*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 215.
Coal Measures: Clark County, Missouri.

***Lingula crawfordsvillensis* Gurley.**

- 1883. *Lingula Crawfordsvillensis*. Gurley, New Carb. Foss., Bull. No. 1, p. 2.
Keokuk Group: Crawfordsville, Indiana.

***Lingula cuyahoga* Hall.**

- 1863. *Lingula cuyahoga*. Hall, 16th Rep. N. Y. State Cab. Nat. Hist., p. 24.
Waverly S. S.: Cuyahoga Falls and Akron, Ohio.
- 1865. *Lingula Cuyahoga*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 112.
Marshall Group: Hillsdale, Michigan; Wethersfield, Trumbull County,
Ohio.
- 1867. *Lingula cuyahoga*. Hall, Pal. N. Y., vol. 4, p. 15, pl. 1, fig. 5.
Waverly S. S.: Cuyahoga Falls and Akron, Ohio.

Lingula cuyahoga Hall—Continued.

1888. *Lingula cuyahoga*. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 29.
Waverly Group: Cuyahoga Valley, Ohio.
1895. *Lingula Cuyahoga*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, fig. 9.
Cuyahoga or Berea Shale: Cuyahoga River, Ohio.

Lingula flabellula. See *Glossina flabellula*.

Lingula gannensis Herrick.

1885. *Lingula gannensis*. Herrick, Bull. Den. Univ., vol. 4, p. 17, pl. 3, figs. 2, 3.
Middle Waverly; Gann, Knox County, Ohio.
1895. *Lingula gannensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, figs. 2, 3.
Middle Waverly Group: Knox County, Ohio.

Lingula gorbyi Miller.

1892. *Lingula gorbyi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 55,
pl. 9, figs. 3, 4.
Chouteau L. S.: Sedalia, Missouri.
1894. *Lingula gorbyi*. Miller, 18th Rep. Geol. Surv. Ind., p. 309, pl. 9, figs. 3, 4.
Chouteau L. S.: Sedalia, Missouri.

Lingula halli White.

1862. *Lingula Halli*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 30.
L. Burlington L. S.: Burlington, Iowa.

Lingula indianensis Miller and Gurley.

1894. *Lingula indianensis*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat.
Hist., p. 69, pl. 7, fig. 1.
Keokuk Group: Crawfordsville, Indiana.

Lingula meeki Herrick.

1888. *Lingula meeki*. Herrick, Bull. Den. Univ., vol. 4, p. 18, pl. 10, fig. 31.
Waverly Group: Cuyahoga Valley, Ohio.
1895. *Lingula meeki*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, figs. 7, 8.
Cuyahoga or Berea Shale: Cuyahoga River, Ohio.

Lingula melie Hall.

1863. *Lingula melie*. Hall, 16th Rep. N. Y. State Cab. Nat. Hist., p. 24.
Chemung Group: Chagrin Falls, Ohio.
1867. *Lingula melie*. Hall, Pal. N. Y., vol. 4, p. 14, pl. 1, figs. 3, 4.
Chemung Group: Chagrin Falls, Ohio.
1875. *Lingula melie* ? Meek, Pal. Ohio, vol. 2, p. 276, pl. 14, fig. 3.
Cuyahoga Shale: Johnson, Trumbull County, Ohio.
1888. *Lingula melie* ? Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 32.
Waverly Group: Cuyahoga Valley, Ohio.
1888. *Lingula melie*. Herrick, Bull. Den. Univ., vol. 4, pl. 19, fig. 1.
Bedford Shale: Central College, Ohio.
1889. *Lingula melie*. Herrick, Am. Geol., vol. 3, pl. 4, fig. 1.
Bedford Shale: Ohio.
1892. *Lingula Melie*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 1, fig. 32.
Waverly Group: Berea, Ohio.
1895. *Lingula melie*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 1; pl. 22, fig. 10.
Bedford Shale: Central College, Ohio.
Cuyahoga or Berea Shale: Cuyahoga River, Ohio.

Lingula membranacea Winchell.

1863. *Lingula membranacea*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 3.
Yellow S. S.: Burlington, Iowa.
1870. *Lingula membranacea*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 248.
Waverly Group: Near Shafers, Pennsylvania.

Lingula membranacea Winchell—Continued.

1875. *Lingula (Linguella?) membranacea*. Meek, Pal. Ohio, vol. 2, p. 275, pl. 14, fig. 14.
Waverly Group: Harts Grove, Ashtabula County, Ohio.
1888. *Lingula membranacea*. Herrick, Bull. Den. Univ., vol. 4, p. 17, pl. 3, fig. 4.
Waverly Group: 4 miles southwest of Loudonville, Ohio.
1895. *Lingula membranacea*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, fig. 4.
Sixty feet above Conglomerate II (Waverly Group): Loudonville, Ohio.

Lingula mytiloides. See *Lingula umbonata*.

Lingula paracletus Hall and Clarke.

1892. *Lingula paracletus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 172; p. 12, fig. 8.
Cuyahoga Shale: Chardon, Ohio.
1897. *Lingula paracletus*. Hall, 14th Rep. N. Y. State Geol., p. 326, fig. 1.
Cuyahoga Shale: Chardon, Ohio.

Lingula parriahi Miller.

1892. *Lingula parriahi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 53, pl. 8, fig. 2; pl. 9, fig. 1.
Upper Coal Measures: Kansas City, Missouri.
1894. *Lingula parriahi*. Miller, 18th Rep. Geol. Surv. Ind., p. 307, pl. 8, fig. 2; pl. 9, fig. 1.
Upper Coal Measures: Kansas City, Missouri.

Lingula scotica. See *Glossina waverlyensis*.

Lingula scotica var. *nebraskensis*. See *Glossina nebraskensis*.

Lingula sedaliensis. See *Glossina sedaliensis*.

Lingula subspatulata. See *Barroisella subspatulata*.

Lingula tighti Herrick.

1887. *Lingula tighti*. Herrick, Bull. Den. Univ., vol. 2, p. 43, pl. 4, fig. 5.
Coal Measures: Flint Ridge, Ohio.

Lingula umbonata Cox.

1857. *Lingula umbonata*. Cox, Geol. Surv. Ky., vol. 3, p. 576, pl. 10, figs. 4, 4a.
Coal Measures: Crittenden, Union and Hancock counties, Kentucky.
1873. *Lingula mytiloides?* Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 572, pl. 25, fig. 2.
Coal Measures: Illinois.
1884. *Lingula umbonata*. White, 13th Rep. Geol. Surv. Ind., p. 120, pl. 25, fig. 14.
Coal Measures: Vermilion County, Indiana.
1887. *Lingula umbonata?* Herrick, Bull. Den. Univ., vol. 2, p. 144, pl. 14, fig. 2.
Coal Measures: Flint Ridge, Ohio.
1888. *Lingula umbonata*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 226.
Lower Coal Measures: Des Moines, Iowa.
1894. *Lingula umbonata*. Keyes, Mo. Geol. Surv., vol. 5, p. 38, pl. 35, fig. 4.
Coal Measures: Clinton and Kansas City, Missouri.

Lingula varsoviensis Worthen.

1884. *Lingula varsoviensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 24.
Warsaw Beds: Warsaw and near Hamilton, Illinois.
1890. *Lingula varsoviensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 104, pl. 11, fig. 8.
Warsaw L. S.: Warsaw and near Hamilton, Illinois.

Lingula waverlyensis. See *Glossina waverlyensis*.

Lingula (species undetermined).

1868. *Lingula*. Rogers, Geol. Rep. Penn., vol. 2, p. 833, fig. 693.

LINGULODISCINA Whitfield, 1890.

Lingulodiscina connata Walcott.

1884. *Discina connata*. Walcott, Pal. Eureka Dist., p. 214, pl. 7, figs. 3, 3a.
Lower Carboniferous L. S.: Eureka District, Nevada.

Lingulodiscina newberryi Hall.

1863. *Discina newberryi*. Hall, 16th Rep. N. Y. State Cab. Nat. Hist., p. 30.
Waverly Group: Cuyahoga Falls and Akron, Ohio.
1867. *Discina newberryi*. Hall, Pal. N. Y., vol. 4, p. 23, pl. 1, figs. 10a, b, 11a-c.
Waverly Group: 110 feet below Conglomerate at Cuyahoga Falls and Akron, Ohio.
1875. *Discina (Orbiculoidea) Newberryi*. Meek, Pal. Ohio, vol. 2, p. 277, pl. 14, figs. 1a-d.
Cuyahoga Shale: Farmington, Ohio.
1884. *Discina Newberryi*. Walcott, Pal Eureka Dist., p. 213, pl. 18, figs. 3 (2, 2a-f).
Lower Carboniferous L. S.: Eureka District, Nevada.
1888. *Orbiculoidea newberryi*. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 33.
Waverly Group: Cuyahoga Valley, Ohio.
1889. *Orbiculoidea newberryi?* Herrick, Am. Geol., vol. 3, pl. 4, fig. 2.
Bedford Shale: Ohio.
1892. *Orbiculoidea Newberryi*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 4F, fig. 18.
Waverly Group: Cuyahoga Falls, Ohio.
1894. *Discina newberryi*. Keyes, Mo. Geol. Surv., vol. 5, p. 40.
Kinderhook Group: Sedalia, Springfield, and Louisiana, Missouri.
1895. *Orbiculoidea newberryi*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, figs. 11-13.
Cuyahoga or Berea Shale: Cuyahoga River, Ohio.

Lingulodiscina pleurites Meek.

1875. *Discina (Orbiculoidea?) pleurites*. Meek, Pal. Ohio, vol. 2, p. 278, pl. 14, figs. 2a, b.
Waverly Group: Newark, Ohio.
1888. *Orbiculoidea* sp.? Herrick, Bull. Den. Univ., vol. 3, p. 30, pl. 8, fig. 14.
Waverly Group: Licking County, Ohio.
1888. *Orbiculoidea pleurites*. Herrick, Bull. Den. Univ., vol. 4, p. 19, pl. 3, fig. 5; pl. 10, fig. 42.
Waverly Group: Newark and near Gann, Ohio; Cuyahoga Falls, Ohio.
1892. *Ehlertella pleurites*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 5, figs. 5-8.
Waverly Group: Newark, Ohio.
1892. *Ehlertella pleurites*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 4E, figs. 21-24; pl. 4F, figs. 19, 20.
Waverly Group: Newark, Ohio.
1895. *Orbiculoidea pleurites*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, fig. 12.
Shale above Conglomerate II (Waverly Group): Newark, Gann, and Loudonville, Ohio.

LITHOMYLACRIS Scudder, 1879.

Lithomylacris angusta Scudder.

1879. *Lithomylacris angustum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 48, pl. 5, figs. 2, 3.
Upper Coal Measures: Pittston, Pennsylvania.
1890. *Lithomylacris angusta*. Scudder, Foss. Insc. N. A., vol. 1, p. 68, pl. 5, figs. 2, 3.
Upper Carboniferous: Pittston, Pennsylvania.
1895. *Lithomylacris angusta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 50.
Coal Measures: Near Pittston, Pennsylvania.

Lithomylacris pauperata Scudder.

1890. *Lithomylacris pauperata*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 409, pl. 24, fig. 5.
Carboniferous: Port Griffith, Pennsylvania.
1890. *Lithomylacris pauperata*. Scudder, Foss. Insc. N. A., vol. 1, p. 385, pl. 32, fig. 5.
Carboniferous: Port Griffith, Pennsylvania.
1895. *Lithomylacris pauperata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 51.
Coal Measures: Near Pittston, Pennsylvania.

Lithomylacris pittstoniana Scudder.

1879. *Lithomylacris pittstonianum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 50, pl. 5, figs. 4, 10.
Upper Coal Measures: Pittston, Pennsylvania.
1890. *Lithomylacris pittstonianum*. Scudder, Foss. Insc. N. A., vol. 1, p. 70, pl. 5, figs. 4, 10.
Upper Carboniferous: Pittston, Pennsylvania.
1895. *Lithomylacris pittstoniana*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 50.
Coal Measures: Near Pittston, Pennsylvania.

Lithomylacris simplex Scudder.

1879. *Lithomylacris simplex*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 51, pl. 5, fig. 5.
Lower Coal Measures: Danville, Illinois.
1890. *Lithomylacris simplex*. Scudder, Foss. Insc. N. A., vol. 1, p. 71, pl. 5, fig. 5.
Lower Coal Measures: Danville, Illinois.
1895. *Lithomylacris simplex*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 51.
Lower Coal Measures: Danville, Illinois.

LITHOPHAGA Lamark, 1812.

Lithophaga batesvillensis Weller.

1897. *Lithophaga ? batesvillensis*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 263, pl. 19, figs. 14, 15.
Batesville S. S.: Batesville, Arkansas.

Lithophaga illinoisensis Worthen.

1865. *Lithophaga ? lingulis* (?). Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 245.
Keokuk Group: Warsaw, Illinois.
1868. *Lithophaga lingualis* ? Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 536, pl. 19, figs. 1, 2.
Keokuk Group: Warsaw, Illinois; Crawfordsville, Indiana.
1882. *Lithophaga Illinoensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 39.

Lithophaga lingualis. See *Lithophaga illinoisensis*.

Lithophaga pertenuis Meek and Worthen.

1865. *Lithophaga ? pertenuis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 245.
Warsaw, L. S.: Warsaw, Illinois.
1873. *Lithophaga ? pertenuis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 539, pl. 22, fig. 1.
Warsaw Bed: Warsaw, Illinois.
1894. *Lithophaga pertenuis*. Keyes, Mo. Geol. Surv., vol. 5, p. 117.
St. Louis L. S.: St. Louis, Missouri.

Lithophaga (species undetermined).

1894. *Lithophaga* sp. ? Keyes, Mo. Geol. Surv., vol. 5, p. 116, pl. 43, figs. 8a, b.
Burlington L. S.: Louisiana, Missouri.

LITHOSTROTION Lhwyd, 1869.

Lithostrotion basaltiforme Owen. See *Lithostrotion canadense*.

Lithostrotion californiense Meek.

1864. *Lithostrotion? Californiense*. Meek, Pal. Cal., vol. 1, p. 6, pl. 1, figs. 2-2c.
Carboniferous: Bass's Ranch, Shasta County, California.

Lithostrotion canadense Castelnau.

- *1843. *Azinura Canadensis*. Castelnau, Terr. Sil. de l'Amer. du Nord., pl. 24, fig. 4.
- *1843. *Astrea mamillaris*. Castelnau, Terr. Sil. de l'Amer. du Nord., pl. 24, fig. 5.
- ✓ 1851. *Lithostrotion mamillare*. Milne-Edwards and Haime, Monog. des Polyp. Foss., p. 433, pl. 13, figs 1-1b.
Carboniferous: Mount Fletcher, Alabama; Eldyville, Kentucky; Cumberland Mountains, Tennessee; Charlotte, Tennessee; Harding County, Indiana; Washington County and Cumberland River, Tennessee; Cabell Cey, Virginia; Warsaw, Illinois.
1852. *Lithostrotion basaltiforme*. Owen, Geol. Surv. Wis., Iowa, and Minn., *P&G.* tab. 4, figs. 5, 5a, 6.
Upper Series of Carboniferous L. S.: Sweet Home, on the Des Moines River.
1858. *Lithostrotion mamillare*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 687, pl. 24, figs. 5a, b.
St. Louis L. S.: Mount Pleasant, Iowa; St. Francisville, Missouri; Warsaw, Johnson's Landing, Milan, Alton, and Prairie du Rocher, Illinois; Elliottsville, Indiana; Kentucky, Tennessee, and Alabama.
1858. *Lithostrotion proliferum*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 668, pl. 24, figs. 6a-c.
St. Louis L. S.: Johnson's Landing, and Milan, Illinois.
1860. *Lithostrotion mamillare*. Milne-Edwards, Hist. Nat. Corr., vol. 3, p. 423.
Carboniferous: North America.
1862. *Lithostrotion Canadense*. Owen, Geol. Recon. Ind., p. 364, fig. 6.
Carboniferous: Lost River, Orange County, Indiana.
1864. *Lithostrotion mamillare (?)* Meek, Pal. Cal., vol. 1, p. 5, pl. 1, figs. 4-4b.
Carboniferous: Bass's Ranch, Shasta County, California.
1876. *Lithostrotion mamillare*. Rominger, Geol. Surv. Mich., vol. 3, pt. 2, p. 111, pl. 55, 2 figs.
Carboniferous L. S.: Wildfowl Bay, Bellevue, and Grand Rapids, Mich.
1880. *Lithostrotion mamillare*. White, Cont. to Inv. Pal., No. 8, p. 159, pl. 40, figs. 6a, b.
St. Louis Group: Monroe County, Indiana.
1881. *Lithostrotion mamillare*. White, 2d Ann. Rep. Dep. Stat. and Geol. Ind., p. 506, pl. 6, figs. 1, 2.
Subcarboniferous: Monroe County, Indiana.
1882. *Lithostrotion mamillare*. White, 11th Rep. Geol. Surv. Ind., p. 401, pl. 52, fig. 3.
St. Louis Group: Indiana.
1894. *Lithostrotion mamillare*. Keyes, Mo. Geol. Surv., vol. 4, p. 106, pl. 12, fig. 8.
St. Louis L. S.: St. Francisville, Ste. Genevieve, and St. Louis, Missouri.
- Lithostrotion harmodites* Milne-Edwards and Haime.
1851. *Lithostrotion harmodites*. Milne-Edwards and Haime, Monog. des polyp., Foss., p. 440, pl. 15, figs. 1, 1a.
Carboniferous: North America.

Lithostrotion junceum Fleming.1828. *Caryophyllea juncea*. Fleming, Brit. Anim., p. 509.1878. *Lithostrotion junceum*. Ethridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 610.

Carboniferous: Feikden Isthmus, Latitude 82° 43'.

Lithostrotion mamillare Castelnau. See *Lithostrotion canadense*.**Lithostrotion microstylum** White.1880. *Lithostrotion microstylum*. White, Cont. to Inv. Pal., No. 8, p. 159, pl. 40, fig. 7a.

Top of Chouteau L. S.: Sedalia, Missouri.

1894. *Lithostrotion microstylum*. Keyes, Mo. Geol. Surv., vol. 4, p. 124.

Chouteau L. S.: Sedalia, Missouri.

Lithostrotion pictoense Billings.1868. *Lithostrotion Pictoense*. Billings, Dawson's Acad. Geol., p. 285, fig. 83.

Carboniferous L. S.: East River, Pictou.

Lithostrotion proliferum Hall. See *Lithostrotion canadense*.**Lithostrotion stokesi** Milne-Edwards and Haime.1851. *Lithostrotion stokesi*. Milne-Edwards and Haime, Monog. des Polyp. Foss., p. 440, pl. 20, fig. 2.

Carboniferous: Lake Winnipeg, North America.

1860. *Lithostrotion Stokesi*. Milne-Edwards, Hist. Nat. Corr., vol. 3, p. 429.

Carboniferous: Lake Winnipeg, North America.

Lithostrotion whitneyi Meek.1877. *Lithostrotion Whitneyi*. Meek, U. S. Geol. Expl., 40 Par., vol. 4, p. 58, pl. 6, figs. 1, 1c.

Carboniferous L. S.: Boxelder Peak, Wasatch Range, Utah.

1877. *Lithostrotion Whitneyi*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 103, pl. 6, figs. 1a-c.

Carboniferous: Fossil Hill and Ice Creek, Steptoe Valley, White Pine County, Nevada.

Lithostrotion (species undetermined).1852. *Lithostrotion* — (sp. undet.). Hall, Stansb. Exped. Gt. Salt Lake, p. 408, pl. 1, figs. 4a, b.

Carboniferous: Top of Stansbury's Island, Great Salt Lake, Utah.

1864. *Lithostrotion* —? Meek, Pal. Cal., vol. 1, p. 7, pl. 1, figs. 3, 3a.

Carboniferous: Bass's Ranch, Shasta County, California.

1876. *Lithostrotion* —? White, Powell's Geol. Rep. Uinta Mts., p. 88.

Lower Aubrey Group: York, Utah; west base of Wasatch Range.

(LITTORINA Ferussac, 1821.)

Littorina wheeleri. See *Trachydomia wheeleri*.

LOBOCRINUS Wachsmuth and Springer, 1897.

Lobocrinus æquibrachiatus McChesney.1860. *Actinocrinus æquibrachiatus*. McChesney, Desc. New. Pal. Foss., p. 25.
Burlington L. S.: Monmouth, Illinois.1865. *Actinocrinus æquibrachiatus*. McChesney, Ill. New Spec. Foss., pl. 4, figs. 2a-b, 5a-b, pl. 10, fig. 1.1868. *Actinocrinus æquibrachiatus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 18, pl. 4, figs. 2, 5.

Burlington L. S.: Monmouth, Illinois.

Lobocrinus æquibrachiatus McChesney—Continued.

1897. *Lobocrinus æquibrachiatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 440, pl. 29, figs. 8a, b; pl. 46, figs. 6a, b.
Upper Burlington L. S.: Burlington, Iowa.

Lobocrinus æquibrachiatus var. *asteriscus* Meek and Worthen.

1860. *Actinocrinus asteriscus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 385.
Burlington L. S.: Cedar Creek, Warren County, Illinois.
1861. *Actinocrinus equibrachiatus* var. *alatus*. Hall, Desc. New Spec. Crin., p. 1.
Burlington L. S.
1861. *Actinocrinus equibrachiatus* var. *alatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 263.
Burlington L. S.: Burlington, Iowa.
1866. *Actinocrinus asteriscus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 207, pl. 15, figs. 8a-c.
Burlington L. S.: Burlington, Iowa.
1872. *Actinocrinus equibrachiatus* var. *alatus*. Hall, Photo. Plates of Crinoids, pl. 3, figs. 21-23.
1893. *Batocrinus æquibrachiatus* var. *alatus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 11, pl. 1, fig. 14.
Burlington L. S.: Burlington, Iowa.
1894. *Batocrinus æquibrachiatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 181.
Burlington L. S.: White Ledge, Marion County, Missouri.
1897. *Lobocrinus æquibrachiatus* var. *asteriscus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 441, pl. 29, figs. 9a, b.
Upper Burlington L. S.: Burlington, Iowa.

Lobocrinus hageri McChesney.

1860. *Actinocrinus hageri*. McChesney, Desc. New Pal. Foss., p. 28.
Burlington L. S.: Burlington, Iowa.
1865. *Actinocrinus Hageri*. McChesney, Ill. New Spec. Foss., pl. 4, fig. 1, pl. 10, fig. 3.
1868. *Actinocrinus Hageri*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 21, pl. 4, fig. 1.
Burlington L. S.: Burlington, Iowa.
1897. (?) *Lobocrinus Hageri*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 445, pl. 30, figs. 9, 10.
Upper Burlington L. S.: Burlington, Iowa.

Lobocrinus inflatus Rowley and Hare.

1891. *Batocrinus inflatus*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 102, pl. 2, fig. 19.
Lower Burlington L. S.: Louisiana, Missouri.
1891. *Batocrinus bulbosus*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 114, pl. 3, fig. 5.
Lower Burlington L. S.: Louisiana, Missouri.
1897. *Lobocrinus inflatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 444, pl. 34, figs. 18a, b.
Lower Burlington L. S.: Louisiana, Missouri.

Lobocrinus longirostris Hall.

1858. *Actinocrinus longirostris*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 589, pl. 11, figs. 2 4c, d.
Burlington L. S.: Burlington, Iowa.
1868. *Batocrinus Cassedayanus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 353.
Lower Burlington L. S.: Burlington, Iowa.

Lobocrinus longirostris Hall—Continued.

1873. *Batocrinus Cassedayanus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 370, pl. 5, fig. 1.
Burlington L. S.: Burlington, Iowa.
1894. *Batocrinus longirostris*. Keyes, Mo. Geol. Surv., vol. 4, p. 180, pl. 24, fig. 5.
Lower Burlington L. S.: Sedalia, Hannibal, and Louisiana, Missouri.
1897. *Lobocrinus longirostris*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 442, pl. 28, figs. 1a-c.
Lower Burlington L. S.: Burlington, Iowa; Missouri.

Lobocrinus nashvillæ Hall.

1858. *Actinocrinus nashvillæ*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 609, pl. 15, fig. 4, pl. 16, figs. 4a, b.
Keokuk L. S.: Warsaw, Illinois; White Creek Springs, Tennessee.
1890. *Batocrinus nashvillæ*. Worthen, Geol. Surv. Ill., vol. 8, p. 85, pl. 13, fig. 5.
Keokuk L. S.: Keokuk, Iowa.
1894. *Batocrinus nashvillæ*. Keyes, Mo. Geol. Surv., vol. 4, p. 183.
Keokuk L. S.: St. Francisville and Palmyra, Missouri; Keokuk, Iowa.
1897. *Lobocrinus Nashvillæ*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 435, pl. 31, fig. 1.
Keokuk L. S.: White's Creek Springs, near Nashville, Tennessee; Button-mould Knob, Kentucky; Keokuk, Iowa; Warsaw and Nauvoo, Illinois.

Lobocrinus nashvillæ var. subtractus White.

1862. *Actinocrinus Nashvillæ* var. *subtractus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 16.
Upper Burlington L. S.: Burlington, Iowa.
1894. *Batocrinus subtractus*. Keyes, Mo. Geol. Surv., vol. 4, p. 183.
Burlington L. S.: Hannibal, Missouri.
1897. *Lobocrinus Nashvillæ* var. *subtractus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 436, pl. 31, figs. 2a, b.
Burlington L. S. and Burlington-Keokuk transition bed: Des Moines County, Iowa; Henderson County and Nauvoo, Illinois.

Lobocrinus pyriformis Shumard.

1855. *Actinocrinus pyriformis*. Shumard, Geol. Rep. Mo., p. 192, pl. A, figs. 6a, b.
Encrinital L. S.: Near Palmyra, Marion County, Missouri.
1860. *Actinocrinus pyriformis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, pl. 2, fig. 8.
1861. *Actinocrinus pyriformis* var. *rudis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 131.
Chouteau L. S.: Salt Lick Point, Monroe County, Illinois.
1865. *Actinocrinus pistilliformis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 153.
1866. *Actinocrinus pistilliformis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 151, pl. 14, fig. 8.
Kinderhook Group: Salt Lick Point, Marion County, Illinois.
1873. *Batocrinus pyriformis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 375, pl. 5, fig. 5.
Burlington L. S.: Burlington, Iowa; Marion County, Missouri; Illinois.
1874. *Batocrinus pyriformis*. Meek, Am. Jour. Sci. (3), vol. 7, p. 192.
1889. *Batocrinus pistilliformis*. Rowley, Am. Geol., vol. 3, p. 276.
Upper Burlington L. S.: Louisiana and Curryville, Missouri.
1894. *Batocrinus pyriformis*. Keyes, Mo. Geol. Surv., vol. 4, p. 182, pl. 23, fig. 7.
Upper Burlington L. S.: Helton, Hannibal, Louisiana, Palmyra, and Ash Grove, Missouri.
1897. *Lobocrinus pyriformis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 437, pl. 31, figs. 3a-e.
Upper Burlington L. S.: Iowa, Illinois, Missouri.

Lobocrinus robustus Wachsmuth and Springer.

1897. *Lobocrinus robustus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 436, pl. 30, figs. 8a, b.

Keokuk Group: White's Creek Springs, Tennessee.

Lobocrinus spiniferus Wachsmuth and Springer.

1897. *Lobocrinus spiniferus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 439, pl. 30, figs. 11, 12.

Keokuk Group: Indian Creek, Montgomery County, Indiana.

Lobocrinus yandelli Shumard.

- *1857. *Actinocrinus Yandelli*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 76, pl. 1, figs. 4a, b.

1897. *Lobocrinus Yandelli*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 441, pl. 30, figs. 7a, b.

Keokuk Group: Button-mould Knob, Kentucky.

LOFTUSIA Carpenter and Brady, 1869.**Loftusia columbiana** Dawson.

1879. *Loftusia columbiana*. Dawson, Quart. Jour. Geol. Soc. Lond., vol. 35, p. 74, pl. 6, figs. 1-7.

Carboniferous L. S.: Marble Canyon, British Columbia.

LOPHOPHYLLUM Milne-Edwards and Haime.**Lophophyllum calceola** White and Whitfield. See *Zaphrentis calceola*.**Lophophyllum expansum** White.

1876. *Lophophyllum expansum*. White, Proc. Acad. Nat. Sci. Phil., p. 27.

Keokuk L. S.: Henry County, Iowa.

1880. *Lophophyllum expansum*. White, Cont. to Inv. Pal., No. 8, p. 157, pl. 39, figs. 4a, b.

Keokuk L. S.: Henry County, Iowa.

Lophophyllum profundum Milne-Edwards and Haime.

1851. *Cyathazonia profunda*. Milne-Edwards and Haime, Monog. des Polyp. Foss., p. 323.

Carboniferous: Flint Ridge, Ohio.

1860. *Cyathazonia profunda*. Milne-Edwards, Hist. Nat. Corr., vol. 3, p. 331.

Carboniferous: Ohio.

1860. *Cyathazonia prolifera*. McChesney, Desc. New Pal. Foss., p. 75.

Coal Measures: Widely distributed in the Western States.

1865. *Cyathazonia prolifera*. McChesney, Ill. New Spec. Foss., pl. 2, figs. 1-3.

1866. *Cyathazonia* (?) sp. Geinitz, Carh. und Dyas in Nebr., p. 65, 66, tab. 5, figs. 3, 4.

Plattsmouth, Nebraska.

1868. *Cyathazonia prolifera*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 1, pl. 2, figs. 1-3.

Coal Measures: Springfield, Illinois.

1872. *Lophophyllum proliferum*. Meek, U. S. Geol. Surv. Nebr., p. 149, pl. 5, figs. 4a, b.

Upper Coal Measures: Nebraska City and Rock Bluff, Nebraska; Springfield and Lasalle, Illinois; Texas.

1873. *Lophophyllum proliferum*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 560, pl. 24, fig. 1.

Upper Coal Measures: Springfield, Illinois.

1876. *Lophophyllum proliferum*. White, Powell's Geol. Rep. Uinta Mts., p. 88.

Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.

Lophophyllum profundum Milne-Edwards and Haime—Continued.

1884. *Lophophyllum proliferum*. White, 13th Rep. Geol. Surv. Ind., p. 118, pl. 23, figs. 6, 7.
Coal Measures: Indiana; Illinois; Iowa.
1887. *Cyathazonia prolifera*. Foerste, Bull. Den. Univ., vol. 2, p. 86, pl. 7, figs. 15a-c.
Coal Measures: Flint Ridge and Bald Hill, Ohio.
1888. *Lophophyllum profunda*. Foerste, Bull. Den. Univ., vol. 3, p. 136.
Coal Measures: Flint Ridge, Ohio.
1888. *Lophophyllum proliferum*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 225.
Lower Coal Measures: Des Moines, Iowa.
1890. *Lophophyllum profundum*. Worthen, Geol. Surv. Ill., vol. 8, p. 79, pl. 10, figs. 14, 14a.
Coal Measures: Lasalle, Illinois.
1894. *Lophophyllum proliferum*. Keyes, Mo., Geol. Surv., vol. 4, p. 115, pl. 13, figs. 8a, b.
Upper Coal Measures: Kansas City, Missouri.
1897. *Lophophyllum proliferum*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 25.
Upper Coal Measures: Poteau Mountain, Indian Territory.

Lophophyllum profundum var. sauridens White.

1877. *Lophophyllum proliferum* var. *sauridens*. White, U. S. Geol. Surv. W. 100 Merid., vol. 4, p. 101, pl. 6, figs. 4a, d.
Carboniferous: Near Santa Fé, New Mexico; Rock Creek, Lake County, Colorado.

Lophophyllum proliferum McChesney. See *Lophophyllum profundum*.

Lophophyllum proliferum var. *sauridens* White. See *Lophophyllum profundum* var. *sauridens*.

Lophophyllum (species undetermined).

1888. *Lophophyllum* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 11, fig. 17.
Chester Group: Ohio.

LOXONEMA Phillips, 1841.**Loxonema acutulum Dawson.**

1868. *Loxonema acutula*. Dawson, Acad. Geol., p. 309.
Carboniferous L. S.: Windsor, Nova Scotia.

Loxonema attenuatum Stevens.

1858. *Chemnitzia attenuata*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 259.
Coal Measures: Danville, Illinois.

Loxonema attenuatum var. *semicostatum* Meek. See *Loxonema semicostatum*.

Loxonema bellum Walcott.

1884. *Loxonema bella*. Walcott, Bal. Eureka Dist., p. 258, pl. 24, figs. 1a, b.
Lower Carboniferous: Eureka District, Nevada.

Loxonema cara Dawson.

1883. *Loxonema cara*. Dawson, Rep. Peter Redpath, Mus., No. 2, p. 11.
Lower Carboniferous L. S.: Windsor, Nova Scotia.

Loxonema carinatum. See *Soleniscus carinatus*.

Loxonema cerithiforme Meek and Worthen.

1860. *Loxonema cerithiformis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 465.
Upper Coal Measures: Springfield, Ill.

Loxonema cerithiforme Meek and Worthen—Continued.

1866. *Loxonema cerithiformis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 379, pl. 31, figs. 13a-c.

Upper Coal Measures: Springfield, Illinois.

Loxonema danvillensis Stevens.

1858. *Loxonema Danvillensis*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 259.

Coal Measures: Danville, Illinois.

Loxonema delphicola Hall.

1879. *Loxonema delphicola*. Hall, Pal. N. Y., vol. 5, pt. 2, p. 47, pl. 13, figs. 19-25; pl. 14, figs. 1, 2.

Hamilton Group: New York.

1888. *Loxonema delphicola*? Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 15.

Bedford Shale: Central College, Ohio.

1889. *Loxonema* (cf. *delphicola*). Herrick, Am. Geol., vol. 3, pl. 4, fig. 15.

Bedford Shale: Ohio.

1895. *Loxonema delphicola*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 15.

Shale above Berea Grit: Ohio.

Loxonema fasciatum King.

1850. *Loxonema fasciata*. King, Perm. Foss. Eng., p. 209, pl. 16, fig. 30.

1858. *Loxonema fasciata*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 196.

Lower Permian: Kansas.

Loxonema hallii Norwood and Pratten.

1855. *Loxonema Hallii*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 77, pl. 9, figs. 11a, b.

Coal Measures: Galatia, Illinois; and on Wabash River, 5 miles below New Harmony, Indiana.

Loxonema inornata. See *Bulimorpha inornata*.

Loxonema minutum. See *Bulimorpha minuta*.

Loxonema multicostatum Meek and Worthen.

1861. *Loxonema multicostata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 146.

Coal Measures: Hodge's Creek, Macoupin County, Illinois.

1866. *Loxonema multicosta*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 378, pl. 31, figs. 12a-c.

Coal Measures: Macoupin County, Illinois.

1891. *Loxonema multicosta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 260.

Lower Coal Measures: Des Moines, Iowa.

1894. *Loxonema multicosta*. Keyes, Mo. Geol. Surv., vol. 5, p. 206.

Upper Coal Measures: Kansas City, Missouri.

Loxonema newberryi. See *Soleniscus newberryi*.

Loxonema nitidula. See *Bulimorpha nitidula*.

Loxonema nodosum Stevens.

1858. *Loxonema nodosa*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 260.

Coal Measures: Summit, Ohio.

Loxonema oligospira Winchell.

1863. *Loxonema oligospira*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 22.

Yellow S. S.: Burlington, Iowa.

Loxonema parvum Cox.

1857. *Chimnizia parva*. Cox, Geol. Surv. Ky., vol. 3, p. 567, pl. 8, figs. 3, 3a.

Coal Measures: Daviess County, Kentucky.

Loxonema peoriense Worthen.

1884. *Loxonema peoriense*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 7.
Coal Measures: Peoria County, Illinois.
1890. *Loxonema peoriense*. Worthen, Geol. Surv.; Ill., vol. 8, p. 139, pl. 23,
figs. 10, 10b.
Coal Measures: Peoria County, Illinois.

Loxonema plebium Herrick.

1887. *Loxonema* sp. Herrick, Bull. Den. Univ., vol. 2, p. 147, pl. 14, fig. 8. (*L. plebium* (n. sp.) in explanation of plate.)
Coal Measures: Flint Ridge, Ohio.

Loxonema plicatum Whitfield.

1882. *Loxonema plicatum*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 231.
Coal Measures: Carbon Hill, Hocking County, Ohio.
1891. *Loxonema plicatum*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 601, pl. 15,
figs. 14, 15.
Coal Measures: Carbon Hill, Hocking County, Ohio.
1895. *Loxonema plicatum*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 486, pl. 11,
figs. 14, 15.
Coal Measures: Hocking County, Ohio.

Loxonema politum Stevens.

1858. *Loxonema polita*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 260.
Coal Measures: Danville, Illinois.

Loxonema quadricarinatum. See *Murchisonia quadricarinata*.**Loxonema regularis**. See *Soleniscus regularis*.**Loxonema rugosum** Meek and Worthen.

1860. *Loxonema rugosa*. Meek and Worthen, Proc. Acad. Nat. Sci., Phil., p. 465.
Upper Coal Measures: Springfield, Illinois.
1866. *Loxonema rugosa*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 378, pl. 31,
figs. 11a-c.
Upper Coal Measures: Springfield, Illinois.
1881. *Loxonema rugosa*. White, U. S. Geog. Surv. W. 100 Merid., vol. 3, Supp.,
Appendix, p. xxxv, pl. 3, fig. 7a.
Carboniferous: Near Taos, and Coyote Creek, New Mexico.

Loxonema scitulum Meek and Worthen.

1860. *Loxonema scitula*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 464.
Upper Coal Measures: Springfield, Illinois.
1866. *Loxonema scitula*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 377, pl. 31,
figs. 10a-c.
Lower Coal Measures: Hodge's Creek, Maconpin County, Illinois.
1891. *Loxonema scitula*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 259.
Lower Coal Measures: Des Moines, Iowa.
1894. *Loxonema scitulum*. Keyes, Mo. Geol. Surv., vol. 5, p. 206.
Upper Coal Measures: Kansas City, Missouri.

Loxonema semicostata Meek.

1871. *Loxonema attenuata* var. *semicostatus*. Meek, Proc. Acad. Nat. Sci. Phil.,
p. 174.
Coal Measures: Danville, Illinois.
1873. *Loxonema semicostata*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 596,
pl. 29, fig. 2.
Coal Measures: Danville, Illinois.

Loxonema swallovanum Shumard.

1859. *Chemnitzia Swallovaniana*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 399.
White Permian L. S.: Guadalupe Mountains.

Loxonema tenuicarinatum Stevens.

1858. *Loxonema tenui-carinata*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 260.
Coal Measures: Summit, Ohio.

Loxonema tenuilineatum Shumard.

1855. *Chemnitzia tenuilineata*. Shumard, Geol. Rep. Mo., p. 207, pl. C, fig. 12.
Chouteau L. S.: Cooper County, Missouri.
1894. *Loxonema tenuilineatum*. Keyes, Mo. Geol. Surv., vol. 5, p. 206.
Chouteau L. S.: Chouteau Springs, Missouri.

Loxonema turritiforme Hall.

1860. *Loxonema turritiformis*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 109.
Goniatite L. S.: Rockford, Indiana.

Loxonema vineta. See *Murchisonia vineta*.**Loxonema yandellianum** Hall.

1866. *Loxonema Yandelliana*. Hall, Trans. Albany Inst., vol. 4, p. 28.
St. Louis L. S.: Spergen Hill, Indiana.
1882. *Loxonema Yandelliana*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 77,
pl. 8, figs. 35, 36.
St. Louis Group: Spergen Hill, Indiana.
1883. *Loxonema yandelliana*. Hall, 12th Rep. Geol. Surv. Ind., p. 365, pl. 31,
figs. 35, 36.
St. Louis Group: Spergen Hill, Indiana.
1888. *Loxonema yandelliana?* Herrick, Bull. Den. Univ., vol. 3, p. 86, pl. 8, fig. 23.
Waverly Group: Licking County, Ohio.

Loxonema (species undetermined).

1873. *Loxonema* (sp. undet.). Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 29,
figs. 3a, b.
Coal Measures.
1873. *Loxonema* (*Michelia?*) (sp. undet.). Meek and Worthen, Geol. Surv. Ill.,
vol. 5, pl. 29, figs. 4a, b.
Coal Measures.
1887. *Loxonema* sp. Herrick, Bull. Den. Univ., vol. 2, p. 22, pl. 3, fig. 2.
Coal Measures: Flint Ridge, Ohio.
1888. *Loxonema* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 7, fig. 7.
Waverly Group: Newark, Ohio.
1895. *Loxonema* sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 18, fig. 7.
Kinderhook: Granville, Ohio.

LUNULICARDIUM Munster, 1840.**Lunulicardium retrorsum** Miller and Gurley.

1896. *Lunulicardium retrorsum*. Miller and Gurley, Bull. No. 11, Ill. State Mus.
Nat. Hist., p. 6, pl. 2, figs. 26-28.
Chouteau L. S.: Near Sedalia, Missouri.

(LYONSIA Turton, 1822.)**Lyonsia concava**. See *Sedgwickia concava*.**LYRIOPECTEN** Hall, 1884.**Lyriopecten nodocostatus** Herrick.

1888. *Lyriopecten nodocostatus*. Herrick, Bull. Den. Univ., vol. 4, p. 32, pl. 11, fig. 5.
Waverly Group: Licking and Richland counties, Ohio.
1895. *Lyriopecten nodocostatus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, fig. 27.
Cuyahoga Shale: Licking County, Ohio.

• LYRODICTYA Hall, 1884.

Lyrodictya romingeri Hall.

1884. *Lyrodictya Romingeri*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 476.
Keokuk Group: Crawfordsville, Indiana.

LYROPOBA Hall, 1857.

Lyropora divergens Ulrich.

1890. *Lyropora divergens*. Ulrich, Geol. Surv. Ill., vol. 8, p. 584, pl. 58, figs. 4-4d.
Chester Group: Chester, Illinois; Sloan's Valley, Kentucky.
1894. *Lyropora divergens*. Keyes, Mo. Geol. Surv., vol. 5, p. 28.
Kaskaskia L. S.: Chester, Illinois.

Lyropora lyri Hall.

1857. *Fenestella (Lyropora) Lyri*. Hall, Proc. Am. Ass. Adv. Sci., vol. 10, p. 179.
Kaskaskia L. S.: Chester and Kaskaskia, Illinois.

Lyropora ovalis Ulrich.

1890. *Lyropora ovalis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 585, pl. 58, figs. 5-5b;
pl. 55, fig. 8.
Chester Group: Grayson Springs, Kentucky.

Lyropora quincuncialis Hall.

1857. *Fenestella (Lyropora) quincuncialis*. Hall, Proc. Am. Ass. Adv. Sci., vol. 10,
p. 180.
Kaskaskia L. S.: Chester, Illinois.
1890. *Lyropora quincuncialis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 583, pl. 58, figs. 3-3d.
pl. 55, figs. 7-7c.
Chester Group: Chester, Illinois.
1894. *Lyropora quincuncialis*. Keyes, Mo. Geol. Surv., vol. 5, p. 27.
Kaskaskia L. S.: Chester, Illinois.

Lyropora ranosculum Ulrich.

1890. *Lyropora ranosculum*. Ulrich, Geol. Surv. Ill., vol. 8, p. 581, pl. 58, figs. 1-1c.
Chester Group: Chester and Kaskaskia, Illinois; Sloan's Valley, Kentucky.

Lyropora retrorsa Meek and Worthen.

1868. *Fenestella (Lyropora) retrorsa*. Meek and Worthen, Geol. Surv. Ill., vol. 3,
p. 504, pl. 15, fig. 1.
Burlington Group: Burlington, Iowa.
1894. *Lyropora retrorsa*. Keyes, Mo. Geol. Surv., vol. 5, p. 27, pl. 34, fig. 4.
Burlington L. S.: Louisiana, Missouri.

Lyropora subquadrans Hall.

1857. *Fenestella (Lyropora) subquadrans*. Hall, Proc. Am. Ass. Adv. Sci., vol. 10,
p. 180.
Kaskaskia L. S.: Chester, Illinois.
1890. *Lyropora subquadrans*. Ulrich, Geol. Surv. Ill., vol. 8, p. 582, pl. 58, figs. 2-2c.
Chester Group: Chester, Illinois; Sloan's Valley, Kentucky.
1894. *Lyropora subquadrans*. Keyes, Mo. Geol. Surv., vol. 5, p. 27.
Kaskaskia L. S.: Chester, Illinois.

MACROCARIS Miller, 1892.

Macrocaris gorbyi Miller.

1892. *Macrocaris gorbyi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 78,
pl. 9, figs. 43-46.
Keokuk Group: West Point, Indiana.
1894. *Macrocaris gorbyi*. Miller, 18th Rep. Geol. Surv. Ind., p. 332, pl. 9,
figs. 43-46.
Keokuk Group: West Point, Indiana.

(MACROCHEILUS Phillips, 1841.)

- Macrocheilus altonensis.* See *Soleniscus altonensis*.
Macrocheilus altonensis. See *Soleniscus*? *worthenanus*.
Macrocheilus angulifera. See *Soleniscus*? *anguliferus*.
Macrocheilus cooperensis. See *Sphærodoma cooperensis*.
Macrocheilus fusiformis. See *Soleniscus fusiformis*.
Macrocheilus gracilis. See *Soleniscus gracilis*.
Macrocheilus hallanum. See *Soleniscus hallanus*.
Macrocheilus hildrethi. See *Soleniscus paludinæformis*.
Macrocheilus humilis. See *Soleniscus humilis*.
Macrocheilus inhabilis. See *Sphærodoma primogenia*.
Macrocheilus intercalaris. See *Sphærodoma intercalaris*.
Macrocheilus intercalaris var. *pulchellus.* See *Sphærodoma intercalaris*.
Macrocheilus kansasensis. See *Soleniscus kansasensis*.
Macrocheilus klipparti. See *Soleniscus klipparti*.
Macrocheilus littonanum. See *Sphærodoma littonana*.
Macrocheilus medialis. See *Sphærodoma medialis*.
Macrocheilus missouriensis. See *Soleniscus*? *missouriensis*.
Macrocheilus newberryi. See *Soleniscus newberryi*.
Macrocheilus paludinæformis. See *Soleniscus paludinæformis*.
Macrocheilus pinguis. See *Sphærodoma pinguis*.
Macrocheilus ponderosum. See *Sphærodoma ponderosa*.
Macrocheilus primogenius. See *Sphærodoma primogenia*.
Macrocheilus pulchellus. See *Sphærodoma intercalaris*.
Macrocheilus regularis. See *Soleniscus regularis*.
Macrocheilus spiratus. See *Soleniscus* (species undetermined).
Macrocheilus subcorpulentus. See *Sphærodoma subcorpulenta*.
Macrocheilus terranovicus. See *Soleniscus*? *terranovicus*.
Macrocheilus texanus. See *Sphærodoma texana*.
Macrocheilus ventricosa. See *Soleniscus brevis*.

(MACROCHILINA Bayle, 1880.)

- Macrochilina blairi.* See *Soleniscus*? *blairi*.

MACROCRINUS Wachsmuth and Springer, 1897.

Macrocrinus carica Hall.

1861. *Actinocrinus carica.* Hall, Desc. New Spec. Crin., p. 10.
 Burlington L. S.
 1872. *Actinocrinus carica.* Hall, Photo. Plates of Crinoids, pl. 4, fig. 12.
 1894. *Eretmocrinus carica.* Keyes, Mo. Geol. Surv., vol. 4, p. 176.
 Lower Burlington L. S.: Sedalia, Missouri.
 1897. *Macrocrinus carica.* Wachsmuth and Springer, N. Am. Crin. Cam., p. 448,
 pl. 37, fig. 8.
 Upper Burlington L. S.: Burlington, Iowa.

Macrocrinus gemmiformis Hall.

1860. *Actinocrinus gemmiformis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 23.
Burlington L. S.: Burlington, Iowa.
1872. *Actinocrinus gemmiformis*. Hall, Photo. Plates of Crin., pl. 3, fig. 6.
1897. *Macrocrinus gemmiformis*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 449, pl. 36, fig. 8.
Lower Burlington L. S.: Burlington, Iowa.

Macrocrinus jucundus Miller and Gurley.

1890. *Batocrinus jucundus*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13,
p. 20, pl. 4, figs. 5, 6.
Keokuk Group: Crawfordsville, Indiana.
1890. *Batocrinus jucundus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 341,
pl. 4, figs. 5, 6.
Keokuk Group: Crawfordsville, Indiana.
1891. *Batocrinus agnatus*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 53,
pl. 8, figs. 1, 2.
Keokuk Group: Indian Creek, Montgomery County, Indiana.
1892. *Batocrinus agnatus*. Miller, 17th Rep. Geol. Surv. Ind., p. 663, pl. 8, figs. 1, 2.
Keokuk Group: Indian Creek, Montgomery County, Indiana.
1897. *Macrocrinus jucundus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 451,
pl. 30, figs. 13, 14.
Keokuk Group: Indian Creek, Montgomery County, Indiana.

Macrocrinus konincki Shumard.

1855. *Actinocrinus Konincki*. Shumard, Geol. Rep. Mo., p. 195, pl. A, figs. 8a-c.
Enerinital L. S.: Rocheport, Boone County; near Palmyra, Marion County,
Missouri.
1860. *Actinocrinus urnæformis*. McCheaney, Desc. New Pal. Foss., p. 23.
Burlington L. S.: Honey Creek, Illinois.
1894. *Eretmocrinus konincki*. Keyes, Mo. Geol. Surv., vol. 4, p. 178.
Upper Burlington L. S.: Ash Grove, Rocheport, and Palmyra, Missouri.
1897. *Macrocrinus Konincki*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 447,
pl. 35, figs. 1-3.
Upper Burlington L. S.: Burlington, Iowa.

Macrocrinus lagunculus Hall.

1860. *Actinocrinus lagunculus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 41.
Keokuk L. S.: Warsaw, Illinois.
1897. *Macrocrinus lagunculus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 453, pl. 35, fig. 4.
Keokuk Group: Warsaw, Illinois; Keokuk, Iowa.

Macrocrinus verneuillianus Shumard.

1855. *Actinocrinus Verneuillianus*. Shumard, Geol. Rep. Mo., p. 193, pl. A,
figs. 1a, b.
Enerinital L. S.: Rocheport and near Palmyra, Missouri.
1873. *Batocrinus verneuillianus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 379,
pl. 4, figs. 3, 4.
Burlington L. S.: Sagetown, Illinois; Burlington, Iowa.
1894. *Eretmocrinus verneuillianus*. Keyes, Mo. Geol. Surv., vol. 4, p. 177, pl. 23,
fig. 9.
Upper Burlington L. S.: Lagrange, Palmyra, Helton, Hannibal, Louisiana,
Ste. Genevieve, Rocheport, Springfield, and Ash Grove, Missouri.
1897. *Macrocrinus verneuillianus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 450, pl. 30, figs. 15-18.
Upper Burlington L. S.: Iowa, Illinois, Missouri.

MACRODON Lycett, 1845.**Macrodon blairi** Miller and Gurley.

1896. *Macrodon blairi*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 11, pl. 2, figs. 19-24.
Chouteau L. S.: Near Sedalia, Missouri.

Macrodon carbonarius Cox.

1857. *Arca carbonaria*. Cox, Geol. Surv. Ky., vol. 3, p. 567, pl. 8, fig. 5.
Coal Measures: Providence, Hopkins County, Kentucky; near Hawesville, Hancock County, Kentucky.
1887. *Macrodon carbonaria*. Herrick, Bull. Den. Univ., vol. 2, p. 32, pl. 4, figs. 21, 14.
Coal Measures: Flint Ridge, Ohio.
1897. *Macrodon carbonarius*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 34.
Lower Coal Measures: Conway County, Arkansas.

Macrodon cochlearis Winchell.

1863. *Macrodon cochlearis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 16.
Yellow S. S.: Burlington, Iowa.

Macrodon curtus Hartt.

1868. *Macrodon curtus*. Hartt, Dawson's Acad. Geol., p. 302.
Carboniferous L. S.; Windsor, etc., Nova Scotia.

Macrodon delicatus Meek and Worthen.

1870. *Macrodon delicatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 40.
Upper Coal Measures: Springfield, Illinois.
1873. *Macrodon delicatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 575, pl. 28, fig. 3.
Upper Coal Measures: Springfield, Illinois.

Macrodon facetus Miller and Gurley.

1896. *Macrodon facetus*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 10, pl. 1, figs. 14-16.
Chouteau L. S.: Near Sedalia, Missouri.

Macrodon hamiltoniae Hall.

1884. *Macrodon Hamiltonae*. Walcott, Pal. Eureka Dist., p. 243, pl. 23, figs. 5-5c.
Lower Carboniferous: Eureka District, Nevada.
1888. *Macrodon hamiltonae*. Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 3.
Bedford Shale: Central College, Ohio.
1889. *Macrodon hamiltonae*. Herrick, Am. Geol., vol. 3, pl. 4, fig. 4.
Bedford Shale: Ohio.
1895. *Macrodon hamiltonae*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 4.
Bedford Shale: Central College, Ohio.

Macrodon hardingi Dawson.

1868. *Macrodon Hardingi*. Dawson, Acad. Geol., p. 302, figs. a-c.
Carboniferous L. S.: Windsor, Nova Scotia.

Macrodon micronema Meek and Worthen.

1866. *Macrodon micronema*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 261.
Chester Group: Ste. Genevieve County, Missouri; Randolph County, Illinois.

Macrodon newarkensis Herrick.

1888. *Macrodon newarkensis*. Herrick, Bull. Den. Univ., vol. 4, p. 36, pl. 4, fig. 19.
Waverly Group: Near Newark, Ohio.
1889. *Macrodon newarkensis*. Herrick, Am. Geol., vol. 3, pl. 2, fig. 19.
1895. *Macrodon newarkensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 19.
Burlington and Keokuk: Newark, Ohio.

Macrodon obsoletus Meek.

- *1871. *Macrodon obsoletus*. Meek, Rep. Regents Univ. W. Va.
Lower Coal Measures: Monongahela County, West Virginia.
- 1875. *Macrodon obsoletus*. Meek, Pal. Ohio, vol. 2, p. 334, pl. 19, fig. 9.
Coal Measures: Newark, Ohio.
- 1886. *Macrodon obsoletus*. Heilprin, 2d Geol. Surv. Penn. Ann. Rep. 1885, p. 456,
fig. 19.
Mill Creek, L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
- 1886. *Macrodon obsoletus*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc.,
vol. 2, pt. 2, p. 275, fig. 19.
Mill Creek, L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
- 1887. *Macrodon obsoletus*. Herrick, Bull. Den. Univ., vol. 2, p. 31, pl. 4, fig. 19.
Coal Measures: Flint Ridge, Ohio.
- 1891. *Macrodon obsoletus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 249.
Lower Coal Measures: Des Moines, Iowa.
- 1894. *Macrodon obsoletus*. Keyes, Mo. Geol. Surv., vol. 5, p. 120, pl. 46, fig. 1.
Upper Coal Measures: Kansas City, Missouri.
- 1897. *Macrodon obsoletus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 34.
Upper Coal Measures: Sebastian County, Arkansas; Poteau Mountain,
Indian Territory.

Macrodon ovatus Hall.

- *1870. *Macrodon ovatus*. Hall, Prelim. Not. Lamell., 2, p. 15.
Waverly S. S.: Granville and Newark, Ohio.
- 1885. *Macrodon ovatus*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 351, pl. 51, fig. 8; pl. 93,
fig. 16.
Waverly S. S.: Granville and Newark, Ohio.

Macrodon parvus White and Whitfield.

- 1862. *Macrodon parvus*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8,
p. 299.
Chemung Group: Burlington, Iowa.

Macrodon pettisensis Miller and Gurley.

- 1896. *Macrodon pettisensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat.
Hist., p. 10, pl. 2, figs. 17, 18.
Chouteau L. S.: Near Sedalia, Missouri.

Macrodon reservatus Herrick.

- 1888. *Macrodon reservatus*. Herrick, Bull. Den. Univ., vol. 4, pl. 6, fig. 9.
Waverly Group: Ohio.
- 1895. *Macrodon reservatus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 17, fig. 9.
Kinderhook: Granville, Ohio.

Macrodon sangamonensis Worthen.

- 1890. *Macrodon sangamonensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 123, pl. 21,
figs. 3, 3a.
Coal Measures: Roll's Ford, Sangamon County, Illinois.
- 1894. *Macrodon sangamonensis?* Keyes, Mo. Geol. Surv., vol. 5, p. 121, pl. 46,
fig. 2.
Upper Coal Measures: Kansas City, Missouri.

Macrodon shubenacadiensis Hartt.

- 1865. *Macrodon (?) Shubenacadiensis*. Hartt, Dawson's Acad. Geol., p. 302, fig. 103.
Carboniferous L. S.: Shubenacadie, Nova Scotia.

Macrodon striatocostatus Herrick.

- 1888. *Macrodon striatocostatus*. Herrick, Bull. Den. Univ., vol. 4, p. 37, pl. 6, fig. 7;
pl. 11, fig. 27.
Waverly Group: Ashland County and Licking County, Ohio.

Macrodon tenuistriatus Meek and Worthen.

1866. *Arca striata*. Geinitz, Carb. und Dyas in Nebr., p. 20, tab. 1, fig. 32. (Not *Mytilites striata* Schlath. 1817.)
Nebraska City, Nebraska.
- *1866. *Macrodon tenuistriata*. Meek and Worthen, Proc. Chicago Acad. Sci., vol. 1, p. 17.
Upper Coal Measures: Springfield, Illinois.
1872. *Macrodon tenuistriata*. Meek, U. S. Geol. Surv. Nebr., p. 207, pl. 10, figs. 20a, b.
Upper Coal Measures: Nebraska City, Nebraska; Springfield, Illinois; Iowa.
Lower Coal Measures: Illinois.
1873. *Macrodon tenuistriatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 576, pl. 26, fig. 4.
Upper Coal Measures: Springfield, Illinois.
1887. *Macrodon tenuistriata*. Herrick, Bull. Den. Univ., vol. 2, p. 31.
Coal Measures: Flint Ridge, Ohio.
1888. *Macrodon* (allied to) *tenuistriata*. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 15.
Waverly Group: Cuyahoga Falls, Ohio.
1894. *Macrodon tenuistriatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 120.
Upper Coal Measures: Kansas City, Missouri.
1897. *Macrodon tenuistriatus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 34.
Upper Coal Measures: Poteau Mountain, Indian Territory.

Macrodon triangularis. See *Schizodus triangularis* Herrick.

Macrodon truncatus Walcott.

1884. *Macrodon truncatus*. Walcott, Pal. Eureka Dist., p. 243, pl. 8, fig. 2.
Lower Carboniferous: Eureka District, Nevada.

Macrodon (species undetermined).

1868. *Macrodon*. Dawson, Acad. Geol., p. 303.
Carboniferous L. S.: Nova Scotia.
1888. *Macrodon* sp. Herrick, Bull. Den. Univ., vol. 4, p. 38, pl. 11, fig. 28.
Waverly Group: Portsmouth, Ohio.
1895. *Macrodon* sp. Herrick, Geol. Surv. Ohio., vol. 7, pl. 17, fig. 7.
Cuyahoga Shale: Moot's Run, Licking County, Ohio.
1895. *Macrodon* sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, fig. 26.
Cuyahoga Shale: Ohio.
1897. *Macrodon* sp. Smith, Proc. Am. Phil. Soc., vol. 35, p. 34.
Upper Coal Measures: Crawford County, Arkansas.

MARTESIA Leach, 1824.

Martesia roessleri Meek.

1871. *Martesia? Roessleri*. Meek, Am. Jour. Conch., vol. 7, p. 9, pl. 1, fig. 4.
Permian?: Fort Belknap, Texas.

MARTINIA McCoy, 1844.

Martinia contracta Meek and Worthen.

1861. *Spirifera glabra* var. *contracta*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 143.
Chester L. S.: Pope County and Chester, Illinois.
1866. *Spirifer glaber* var. *contractus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 298, pl. 23, figs. 5a, b.
Chester Group: Chester, Illinois; Pope County, Illinois.

Martinia contracta Meek and Worthen—Continued.

1874. *Spirifer (Martinia) glaber* var. *contracta*. White, Prelim. Rep. Inv. Foss., p. 20.
Carboniferous (Coal Measures): Camp Cottonwood, Lincoln County, Nevada.
1877. *Spirifer (Martinia) glaber* var. *contracta*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 136, pl. 10, figs. 2a-c.
Carboniferous: Camp Cottonwood, Lincoln County, Nevada.
1888. *Spirifer glaber*. Herrick, Bull. Den. Univ., vol. 4, pl. 11, fig. 15.
Chester L. S.: Ohio.
1891. *Spirifer (Martinia) contractus*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 583, pl. 13, figs. 17-19.
Maxville L. S.: Ohio.
1894. *Spirifera contracta*. Keyes, Mo. Geol. Surv., vol. 5, p. 83.
Kaskaskia L. S.: Chester, Illinois.
1895. *Spirifera (Martinia) contracta*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 471, pl. 9, figs. 17-19.
Maxville L. S.: Ohio.

Martinia glabra Martin.

1863. *Spirifera glabra*. Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 170, pl. 9, figs. 9, 10.
Lower Carboniferous L. S.: East River of Pictou, Mabon, Cape Breton, Windsor, Merigomish, etc., Nova Scotia.
1868. *Spirifera glabra*. Dawson, Acad. Geol., p. 291, fig. 89.
Carboniferous L. S.: East River of Pictou, Mabon, Cape Breton, Windsor, Brookfield, Merigomish, etc., Nova Scotia.

Martinia planoconvexa. See *Ambocœlia planoconvexa*.

Martinia umbonata. See *Ambocœlia umbonata*.

MAZONIA Meek and Worthen, 1868.**Mazonia woodiana** Meek and Worthen.

1868. *Mazonia Woodiana*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 563, figs. a-d.
Coal Measures: Mazon Creek, Grundy County, Illinois.

MEDLICOTTIA Waagen, 1880.**Medlicottia copei** White.

1889. *Medlicottia copei*. White, Am. Nat., vol. 23, p. 117, pl. 1, figs. 1, 3.
Permian: Baylor County, Texas.
1891. *Medlicottia copei*. White, Bull. U. S. Geol. Surv., No. 77, p. 21, pl. 1, figs. 1, 3.
Permian: Military Crossing of the Big Wichita, Baylor County, Texas, and San Angelo, Tom Green County, Texas.

MEEKELLA White and St. John, 1868.**Meekella occidentalis** Newberry.

1861. *Streptorhynchus occidentalis*. Newberry, Ives' Colo. Expl. Exped., p. 126, pl. 1, figs. 5, 5a.
Upper Carboniferous (Cherty L. S.): Canyon of the Cascade River.
1892. *Meekella occidentalis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 11B, figs. 18, 19.
Upper Carboniferous L. S.: Canyon of Diamond River.

Meekella pyramidalis Newberry.

1861. *Streptorhynchus pyramidalis*. Newberry, Ives' Colo. Expl. Exped., p. 126, pl. 2, figs. 11-13.
Carboniferous L. S.: On high mesa west of Little Colorado River.

Meekella striatocostata Cox.

1857. *Meekella striato-costata*. Cox, Geol. Surv. Ky., vol. 3, p. 568, pl. 8, fig. 7.
Coal Measures: Providence, Hopkins County, Kentucky.
1858. *Orthisina Shumardiana*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 183.
Lower Permian: Valley of Cottonwood, Kansas.
1858. *Orthisina Missouriensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 219.
Upper Coal Measures: Dallas, Missouri; Kansas.
1859. *Orthisina Shumardiana*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 26.
Upper Coal Measures: Fort Riley, Kansas.
1859. *Orthisina Missouriensis*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 26.
Upper Coal Measures: Leavenworth, Kansas.
1859. *Streptorhynchus (Orthisina) Shumardianus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 395.
Permian S. S.: Guadalupe Mountains.
1863. *Orthisina occidentalis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 82.
Upper Coal Measures: Caldwell County, Missouri.
1866. *Orthis striato-costata*. Geinitz, Carb. und Dyas in Nebr., p. 48, tab. 3, figs. 22-24.
Crescent City, Iowa.
1868. *Meekella striato costata*. White and St. John, Trans. Chicago Acad. Sci., vol. 1, p. 120, figs. 4-6.
Coal Measures: Iowa.
1872. *Meekella striato-costata*. Meek, U. S. Geol. Surv. Nebr., p. 175, pl. 5, figs. 12a-c.
Upper Coal Measures: Nebraska City, Bellevue, Plattsmouth, Otoe City, and Aspinwall, Nebraska; Kentucky; Iowa; Missouri; Illinois.
1873. *Meekella striato-costata*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 571, pl. 26, fig. 21.
Upper and Lower Coal Measures: Caseyville and various localities in Illinois.
1876. *Meekella striatocostata*. White, Powell's Rep. Geol. Uinta Mts., p. 90.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1877. *Meekella striatocostata*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 126, pl. 9, figs. 4a-c.
Carboniferous: Camp Cottonwood, Lincoln County, Nevada; Tenney's Ranch, Kaibab Plateau, Arizona; Kanab Canyon; Meadow Creek, south of Fillmore; Le Verkin's Creek, and at a cliff east of Belleview, Utah.
1883. *Streptorhynchus (Meekella) striatocostata*. Hall, Rep. N. Y. State Geol. for 1882, pl. (10) 40, figs. 18-23.
1884. *Meekella striatocostata*. White, 13th Rep. Geol. Surv. Ind., p. 130, pl. 26, figs. 12-14.
Coal Measures: Western part of Vigo County, Indiana.
1892. *Meekella striatocostata*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 17, figs. 10-13.
Upper Coal Measures: Winterset, Iowa; Lawrence County, Kansas.
1892. *Meekella striatocostata*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 10, figs. 18-23; pl. 11B, figs. 20-22.
Upper Coal Measures: Winterset, Iowa; Lawrence County, Kansas.
1894. *Meekella striatocostata*. Keyes, Mo. Geol. Surv., vol. 5, p. 68, pl. 39, figs. 1a-c.
Upper Coal Measures: Kansas City, Missouri.

MEEKOPORA Ulrich, 1890.**Meekopora ? aperta Ulrich.**

1890. *Meekopora ? aperta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 485, pl. 76, figs. 1, 1a.
Keokuk Group: King's Mountain, Kentucky.

Meekopora approximata Ulrich.

1890. *Meekopora approximata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 484, pl. 77, fig. 5.
Chester Group: Chester, Ill.; Sloan's Valley, Kentucky.
1894. *Meekopora approximata*. Keyes, Mo. Geol. Surv., vol. 5, p. 16.
Kaskaskia L. S.: Chester, Illinois.

Meekopora clausa Ulrich.

1884. *Fistulipora (?) clausa*. Ulrich, Jour. Cin. Soc. Nat. Hist., vol. 7, p. 47, pl. 3,
figs. 4-4b.
Kaskaskia Group: Tateville, Kentucky.
1890. *Meekopora clausa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 485, pl. 76, fig. 6; pl. 77,
figs. 7-7b.
Chester Group: Grayson County and Sloan's Valley, Kentucky; Chester,
Illinois.
1894. *Meekopora clausa*. Keyes, Mo. Geol. Surv., vol. 5, p. 17.
Kaskaskia L. S.: Chester, Illinois.

Meekopora exima Ulrich.

1890. *Meekopora exima*. Ulrich, Geol. Surv. Ill., vol. 8, p. 483, pl. 77, figs. 6-6d.
St. Louis or Chester Group: Monroe County, Illinois.

(MEGAMBONIA Hall, 1859.)

Megambonia lyoni. See *Cardiopsis radiata*.

MEGASTROMA Dawson, 1883.**Megastroma laminosum Dawson.**

1883. *Megastroma laminosum*. Dawson, Rep. Peter Redpath Mus., No. 2, p. 12.
Lower Carboniferous L. S.: Brookfield, Nova Scotia.

MEGATHENTOMUM Scudder, 1868.**Megathentomum pustulatum Scudder.**

1868. *Megathentomum pustulatum*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 11,
p. 401.
Coal Measures: Morris, Illinois.
1868. *Megathentomum pustulatum*. Scudder, Geol. Surv. Ill., vol. 3, p. 570, fig. 7.
Carboniferous: Mazon Creek, Grundy County, Illinois.
1885. *Megathentomum pustulatum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3,
p. 346, pl. 32, figs. 1, 9, 10.
Carboniferous: Morris, Illinois.
1890. *Megathentomum pustulatum*. Scudder, Foss. Insc. N. A., vol. 1, p. 310, pl. 18,
figs. 1, 9, 10.
Carboniferous: Morris, Illinois.

MEGISTOCRINUS Owen and Shumard, 1852.

Megistocrinus brevicornis. See *Megistocrinus evansii*.

Megistocrinus crassus. See *Megistocrinus evansii* var. *crassus*.

Megistocrinus evansii Owen and Shumard.

1850. *Actinocrinus Evansii*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 68, pl. 7, fig. 3.
Subcarboniferous L. S.: Burlington, Iowa.
852. *Megistocrinus evansii*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 594, tab. 5A, figs. 3a, b.
Lower Carboniferous L. S.: Burlington, Iowa.
1858. *Actinocrinus brevicornis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 571, pl. 10, figs. 4a, b.
Burlington L. S.: Burlington, Iowa.
1858. *Actinocrinus superlatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 572.
Burlington L. S.: Burlington, Iowa.
1858. *Actinocrinus minor*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 573.
Burlington L. S.: Burlington, Iowa.
1862. *Megistocrinus plenus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 16.
Upper Burlington L. S.: Burlington, Iowa.
1869. *Megistocrinus parvirostris*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 165.
Upper Burlington L. S.: Burlington, Iowa.
1873. *Megistocrinus parvirostris*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 396, pl. 6, fig. 7.
Burlington L. S.: Burlington, Iowa.
1894. *Megistocrinus evansi*. Keyes, Mo. Geol. Surv., vol. 4, p. 164, pl. 22, fig. 6.
Burlington L. S.: Springfield, Missouri.
1894. *Megistocrinus brevicornis*. Keyes, Mo. Geol. Surv., vol. 4, p. 165, pl. 22, figs. 5a, b.
Lower Burlington L. S.: Louisiana, Missouri.
1897. *Megistocrinus Evansi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 533, pl. 47, figs. 1a, b, 2a, b, 3, 4a, b, 5a-c.
Upper and Lower Burlington L. S.: Burlington, Iowa; Henderson County, Illinois.

Megistocrinus evansi var. *crassus* White.

1862. *Megistocrinus crassus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 17.
Lower Burlington L. S.: Burlington, Iowa.
1897. *Megistocrinus Evansi* var. *crassus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 536.
Lower Burlington L. S.: Burlington, Iowa.

Megistocrinus nobilis Wachsmuth and Springer.

1890. *Megistocrinus nobilis*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 169, pl. 16, figs. 6, 7.
Kinderhook Group: Le Grand, Iowa.
1890. *Megistocrinus parvus*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 171, pl. 15, fig. 7.
Kinderhook Group: Le Grand, Iowa.
1897. *Megistocrinus nobilis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 537, pl. 47, figs. 6, 7, 8a, b; pl. 51, fig. 8.
Kinderhook Group: Le Grand, Marshall County, Iowa.

Megistocrinus parvirostris. See *Megistocrinus evansii*.

Megistocrinus parvus. See *Megistocrinus nobilis*.

Megistocrinus plenus. See *Megistocrinus evansii*.

Megistocrinus whitei. See *Periechocrinus whitei*.

MELOCRINUS Goldfuss, 1826.

Melocrinus pratteni McChesney.

1860. *Forbesiocrinus pratteni*. McChesney, Desc. New Pal. Foss., p. 29.
Carboniferous L. S.: Alabama.
1865. *Forbesiocrinus pratteni*. McChesney, Ill. New Spec. Foss., pl. 5, fig. 4.
1868. *Melocrinus Pratteni*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 22,
pl. 5, fig. 4.
Carboniferous L. S.: Alabama.

Melocrinus sampsoni Miller and Gurley.

1895. *Melocrinus sampsoni*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat.
Hist., p. 55, pl. 2, figs. 27-29.
Chouteau L. S.: Sedalia, Missouri.

MELONITES Owen and Norwood, 1846.

Melonites crassus Hambach.

1884. *Melonites crassus*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 548, pl. C,
fig. 1.
St. Louis L. S.: St. Louis, Missouri.
1895. *Melonites crassus*. Keyes, Mo. Geol. Surv., vol. 4, p. 126.
St. Louis L. S.: St. Louis, Missouri.
1895. *Melonites crassus*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 182.
St. Louis L. S.: St. Louis, Missouri.

Melonites danæ. See *Oligoporus danæ*.**Melonites giganteus** Jackson.

1896. *Melonites giganteus*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 172, pl. 4, fig. 19;
pl. 5, figs. 21-24.
Lower Subcarboniferous: Bowling Green, Kentucky.

Melonites indianensis Miller and Gurley.

1894. *Melonites indianensis*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat.
Hist., p. 5, pl. 1, fig. 1.
St. Louis Group: Greenville, Harrison County, Indiana.

Melonites irregularis Hambach.

1884. *Melonites irregularis*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 549,
pl. C, fig. 2.
St. Louis, L. S.: St. Louis, Missouri.

Melonites multiporus Norwood and Owen.

1846. *Melonites multipora*. Norwood and Owen, Am. Jour. Sci. (2), vol. 2, p. 225,
figs. 1-3.
St. Louis L. S.: St. Louis, Missouri.
1861. *Melonites multipora*. Roemer, Archiv. für. Naturgesch. Jahrg. 21, Bd. 1,
pp. 312-330, pl. 12.
Kohlenkalk: St. Louis and Indiana.
1866. *Melonites multipora*. Meek and Worthen, Geol. Surv. Ill., vol. 2, pp. 227, 228,
figs. 21, 22.
1894. *Melonites multipora*. Keyes, Mo. Geol. Surv., vol. 4, p. 125, pl. 16, figs. 1a, b;
pl. 17, figs. 1a-c.
St. Louis L. S.: St. Louis, Missouri.
1895. *Melonites multipora*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 181, pl. 19, figs.
1a, b; pl. 20, figs. 1a-c.
St. Louis L. S.: St. Louis, Missouri; Clarkesville, and Charlotte, Tennessee.
1896. *Melonites multiporus*. Jackson and Jaggar, Bull. Geol. Soc. Am., vol. 7,
pp. 135-170, pl. 2, figs. 1-7; pl. 3, figs. 10-17; pl. 4, fig. 18; pl. 5, fig. 20.
Subcarboniferous: Missouri, etc.

Melonites septenarius Jackson.

1896. *Melonites septenarius*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 182, pl. 9, fig. 49.

Warsaw Group: Buzzard's Roost, Franklin County, Alabama.

Melonites stewarti Safford.

1869. *Melonites Stewartii*. Safford, Geol. of Tenn., p. 346, pl. 6, figs. 1a-d.
St. Louis L. S.: Middle Tennessee.

MESOBLASTUS Etheridge and Carpenter, 1886.**Mesoblastus glaber** Meek and Worthen.

1869. *Granatocrinus glaber*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 91.
St. Louis L. S.: Hardin County, Illinois.
1873. *Granatocrinus glaber*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 537, pl. 20, fig. 11.
St. Louis Group: Hardin County, Illinois.

MESOTHYRA Hall, 1888.**Mesothyra gurleyi** Miller.

1892. *Mesothyra gurleyi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 77, pl. 9, fig. 37.
Kinderhook Group: Legrand, Iowa.
1894. *Mesothyra gurleyi*. Miller, 18th Rep. Geol. Surv. Ind., p. 331, pl. 9, fig. 37.
Kinderhook Group: Legrand, Iowa.

MESPILOCORINUS De Koninck and Lehon, 1854.**Mespilocrinus konincki** Hall.

1860. *Mespilocrinus konincki*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 69.
Burlington L. S.: Burlington, Iowa.
1872. *Mespilocrinus Konincki*. Hall, Photo. Plates of Crinoids, pl. 6, fig. 9.

Mespilocrinus scitulus Hall.

1861. *Mespilocrinus scitulus*. Hall, Desc. New Spec. Crin., p. 9.
Burlington L. S.
1861. *Mespilocrinus scitulus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 321.
Burlington L. S.: Burlington, Iowa.
1872. *Mespilocrinus scitulus*. Hall, Photo. Plates of Crinoids, pl. 6, figs. 7, 8.

METABLASTUS Etheridge and Carpenter, 1886.**Metablastus bipyramidalis** Hall.

1858. *Pentremites bipyramidalis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 607, pl. 15, fig. 2.
Keokuk L. S.: Missouri.
1894. *Metablastus bipyramidalis*. Keyes, Mo. Geol. Surv., vol. 4, p. 137, pl. 18, fig. 13.
Keokuk L. S.: Boonville, Missouri.

Metablastus lineatus Shumard.

1858. *Pentremites lineatus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 241, pl. 9, figs. 3a-d.
Encrinital L. S.: Near Monmouth, Illinois
1886. *Metablastus lineatus*. Etheridge and Carpenter, Cat. Blast., p. 199, pl. 3, figs. 14, 15; pl. 17, fig. 18.
Upper Burlington L. S.: Burlington, Iowa.
1894. *Metablastus lineatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 136, pl. 18, fig. 11.
Upper Burlington L. S.: Hannibal, Missouri.

Metablastus nitidulus Miller and Gurley.

1890. *Troostocrinus nitidulus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 373, pl. 9, figs. 14, 15; pl. 10, fig. 14.
St. Louis Group: Lanesville, Indiana.

Metablastus varsouvienensis Worthen.

1875. *Pentremites (Tricelocrinus) Varsouvienensis*. Worthen, Geol. Surv. Ill., vol. 6, p. 521, pl. 21, figs. 8, 9.
Warsaw Beds: Warsaw and near Columbus, Illinois.

Metablastus wachsmuthi Gurley.

1884. *Troostocrinus Wachsmuthi*. Gurley, New Carb. Foss., Bull. No. 2, p. 1.
Warsaw division of the St. Louis Group: Ellettsville and Spergen Hill, Indiana.

Metablastus wortheni Hall.

1858. *Pentremites wortheni*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 606, pl. 15, fig. 1.
Keokuk L. S.: Keokuk, Iowa; Nauvoo, Illinois.
1873. *Pentremites Wortheni?* Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 506, pl. 14, fig. 11.
Keokuk Group: Crawfordsville, Indiana.
1894. *Metablastus wortheni*. Keyes, Mo. Geol. Surv., vol. 4, p. 137, pl. 18, fig. 12.
Keokuk L. S.: Boonville, Missouri; Warsaw, Illinois.

METACOCERAS Hyatt, 1883.**Metacoceras cavatiformis** Hyatt.

1891. *Metacoceras cavatiformis*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 334, figs. 30-33.
Carboniferous: Near Kansas City, Missouri.
1892. *Metacoceras cavatiformis*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 72, pl. 11, figs. 5, 7.
Upper Coal Measures: Kansas City, Missouri.
1893. *Metacoceras cavatiformis*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 396.
Carboniferous.
1894. *Metacoceras cavatiformis*. Miller, 18th Rep. Geol. Surv. Ind., p. 326, pl. 11, figs. 5, 7.
Upper Coal Measures: Kansas City, Missouri.
1894. *Metacoceras cavatiforme*. Keyes, Mo. Geol. Surv., vol. 5, p. 224.
Upper Coal Measures: Kansas City, Missouri.

Metacoceras dubium Hyatt.

1891. *Metacoceras dubium*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 336, figs. 34, 35.
Carboniferous: Kansas.
1893. *Metacoceras dubium*. Hay, Trans. Kansas Acad. Sci., vol. 13, p. 39, figs. 6, 7.
Carboniferous: Kansas.

Metacoceras hayi Hyatt.

1891. *Metacoceras Hayi*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 339, figs. 38, 39.
Carboniferous: Kansas.
1893. *Metacoceras Hayi*. Hay, Trans. Kansas Acad. Sci., vol. 13, p. 40, figs. 8, 9.
Carboniferous: Kansas.

Metacoceras inconspicuum Hyatt.

1891. *Metacoceras inconspicuum*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 340, figs. 40, 41.
Carboniferous: Kansas.
1893. *Metacoceras inconspicuum*. Hay, Trans. Kansas Acad. Sci., vol. 13, p. 41, figs. 10, 11.
Carboniferous: Kansas.

Metacoceras sangamonensis Meek and Worthen.

1860. *Nautilus (Discus) Sangamonensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 470.
 Coal Measures: Sangamon County, Illinois.
1866. *Nautilus sangamonensis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 386, pl. 29, figs. 3-3b.
 Upper Coal Measures: Sangamon County, Illinois.
1883. *Metacoceras Sangamonense*. Hyatt, Proc. Bost. Soc. Nat. Hist., vol. 22, p. 269.
1894. *Metacoceras sangamonensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 225.
 Upper Coal Measures: Kansas City, Missouri.

Metacoceras walcotti Hyatt.

1891. *Metacoceras Walcottii*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 337, figs. 36, 37.
 Carboniferous: San Saba County, Texas.
1893. *Metacoceras walcotti*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 394, fig. 2.
 Carboniferous: Bend, San Saba County, Texas.

METOPTOMA Phillips, 1836.*Metoptoma umbella*. See *Igoceras capulus*.**Metoptoma undata** Winchell.

1865. *Metoptoma undata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 131.
 Bed No. 5: Burlington, Iowa.
1889. *Metoptoma? undata*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 298.
 Kinderhook Group: Burlington, Iowa.

Metoptoma peroccidens Walcott.

1884. *Metoptoma peroccidens*. Walcott, Pal. Eureka Dist., p. 260, pl. 18, fig. 16.
 Lower Carboniferous: Eureka District, Nevada.

MIAMIA Dana, 1864.**Miamia bronsoni** Dana.

1864. *Miamia Bronsoni*. Dana, Am. Jour. Sci. (2), vol. 37, p. 34, fig. 1.
 Coal Measures: Morris, Illinois.
1866. *Miamia bronsoni*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 1, p. 190, pl. 6, figs. 2, 4.
 Carboniferous: Morris, Illinois.
1868. *Miamia Bronsoni*. Scudder, Am. Nat., vol. 1, p. 630, pl. 16, fig. 1.
 Carboniferous: Morris, Illinois.
1885. *Miamia Bronsoni*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 333.
 Carboniferous: Morris, Illinois.
1890. *Miamia bronsoni*. Scudder, Foss. Insc. N. A., vol. 1, pp. 18, 297, pl. [1], figs. 2, 4.
 Carboniferous: Morris, Illinois.

Miamia danæ Scudder. See *Gerarus danæ*.**MICHELINIA** De Koninck, 1842.**Michelinia branneri** Miller and Gurley.

1894. *Michelinia branneri*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 68, pl. 7, figs. 12, 13.
 Coal Measures: Danville, Illinois.

Michelinia eugeneæ White.

1884. *Michelinia Eugeneæ*. White, 13th Rep. Geol. Surv. Ind., p. 119, pl. 23, figs. 14-16.

Coal Measures: Edwardsport, Knox County, and Eugene, Vermilion County, Indiana.

Michelinia expansa White. See *Leptopora typa*.

Michelinia placenta White. See *Leptopora typa*.

Michelinia (species undetermined).

1877. *Michelinia* — sp. ? Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 251, pl. 4, fig. 19.

Waverly Group: Dry Canyon, Oquirrh Mountains, Utah.

MICROBLATTINA Scudder, 1895.**Microblattina perditæ** Scudder.

1895. *Microblattina perditæ*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 57, pl. 3, fig. 5.

Lower (?) Coal Measures: East Providence, Rhode Island.

MICROCYNCLUS Meek and Worthen, 1868.**Microcynclus blairi** Miller.

1892. *Microcynclus blairi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 7, pl. 9, figs. 27, 28.

Chouteau L. S.: Sedalia, Missouri.

1894. *Microcynclus blairi*. Miller, 18th Rep. Geol. Surv. Ind., p. 261, pl. 9, figs. 27, 28.

Chouteau L. S.: Sedalia, Missouri.

1894. *Microcynclus blairi*. Keyes, Mo. Geol. Surv., vol. 4, p. 117.

Chouteau L. S.: Sedalia, Missouri.

MICRODOMA Meek and Worthen, 1866.**Microdoma conica** Meek and Worthen.

1866. *Microdoma conica*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 269.

Lower Coal Measures: Macoupin County, Illinois.

1873. *Microdoma conica*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 598, pl. 28, fig. 2.

Lower Coal Measures: Macoupin County, Illinois.

MICRODON Conrad, 1842.**Microdon bellistriatus** Conrad.

1885. *Microdon (Cypricardella) bellistriatus*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 308, pl. 42, figs. 17-20; pl. 73, figs. 7-22; pl. 74, figs. 5-10.

Hamilton Group: New York.

1888. *Microdon bellistriatus*. Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 9.

Bedford Shale: Central College, Ohio.

1889. *Microdon bellistriatus*. Herrick, Am. Geol., vol. 3, pl. 4, fig. 9.

Bedford Shale: Ohio.

1895. *Microdon bellistriatus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 9.

Shale above Berea Grit: Ohio.

Microdon connatus Walcott.

1884. *Microdon (Cypricardella) connatus*. Walcott, Pal. Eureka Dist., p. 250, pl. 24, figs. 5, 5a.

Lower Carboniferous: Eureka District, Nevada.

Microdon ellipticus Whitfield.

1882. *Microdon (Cypricardella) ellipticus*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 65, pl. 7, fig. 37.

St. Louis Group: Spergen Hill, Indiana.

Microdon ? eximia Miller and Gurley.

1896. *Cypricardella eximia*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 15, pl. 2, fig. 25.

Chouteau L. S.: Sedalia, Missouri.

Microdon ? gorbyi Miller.

1891. *Cypricardella gorbyi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 92, pl. 20, figs. 6, 7.

Keokuk Group: Boonville, Missouri.

1892. *Cypricardella gorbyi*. Miller, 17th Rep. Geol. Surv. Ind., p. 702, pl. 20, figs. 6, 7.

Keokuk Group: Boonville, Missouri.

Microdon nucleata Hall.

1856. *Cypricardella nucleata*. Hall, Trans. Albany Inst., vol. 4, p. 17.

St. Louis L. S.: Spergen Hill, Indiana.

1858. *Cypricardella nucleata*. Hall, Geol. Ia., vol. 1, pt. 2, p. 663, pl. 23, figs. 10a-d.

Warsaw L. S.: Spergen Hill, Indiana.

1882. *Microdon (Cypricardella) nucleata*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 64, pl. 7, figs. 35, 36.

St. Louis Group: Spergen Hill and Bloomington, Indiana.

1883. *Cypricardella nucleata*. Hall, 12th Rep. Geol. Surv. Ind., p. 339, pl. 30, figs. 35, 36.

St. Louis Group: Spergen Hill and Lanesville, Indiana.

Microdon oblonga Hall.

1856. *Cypricardella oblonga*. Hall, Trans. Albany Inst., vol. 4, p. 18.

St. Louis L. S.: Spergen Hill and Bloomington, Indiana.

1882. *Microdon (Cypricardella) oblonga*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 65, pl. 7, figs. 30-34.

St. Louis Group: Spergen Hill and Bloomington, Indiana.

1883. *Cypricardella oblonga*. Hall, 12th Rep. Geol. Surv. Ind., p. 340, pl. 30, figs. 30-34.

St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.

Microdon quadratus White and Whitfield.

1862. *Cypricardella quadrata*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 300.

Chemung Group: Burlington, Iowa.

Microdon reservatus Hall.

*1870. *Microdon reservatus*. Hall, Prelim. Not. Lam. Shells, 2, p. 33.

Waverly S. S.: Licking County, Ohio.

1885. *Microdon reservatus*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 312; pl. 74, figs. 11-13.

Waverly S. S.: Licking County, Ohio.

1888. *Microdon reservatus*. Herriek, Bull. Den. Univ., vol. 3, p. 75, pl. 4, fig. 14.

Waverly Group: Licking County, Ohio.

Microdon subellipticus Hall.

1856. *Cypricardella subelliptica*. Hall, Trans. Albany Inst., vol. 4, p. 17.

St. Louis L. S.: Spergen Hill, Indiana.

1858. *Cypricardella subelliptica*. Hall, Geol. Ia., vol. 1, pt. 2, p. 664, pl. 23, figs. 11, 12.

Warsaw L. S.: Spergen Hill, Indiana.

Microdon subellipticus Hall—Continued.

1882. *Microdon* (*Cypricardella*) *subelliptica*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 64, pl. 7, figs. 27-29.
St. Louis Group: Spergen Hill and Bloomington, Indiana.
1883. *Cypricardella subelliptica*. Hall, 12th Rep. Geol. Surv. Ind., p. 339, pl. 30, figs. 27-29.
St. Louis Group: Spergen Hill, Indiana.
1886. *Cypricardella subelliptica* (?). Claypole, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 250.
Lower Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Microdon* (cf. *subelliptica*). Herrick, Bull. Den. Univ., vol. 2, p. 40, pl. 4, fig. 32.
Coal Measures: Flint Ridge, Ohio.

MILIOLITES Lamark.**Miliolites centralis** Say.

1823. *Miliolites centralis*. Say, Long's Exped. to Rocky Mts., vol. 1, p. 152 (foot-note).
Missouri River, near the Platte.
1897. *Miliolitis centralis*. Harris, Bull. Am. Pal., vol. 1, p. 385 (115).

Miliolites secalicus Say.

1823. *Miliolites secalicus*. Say, Long's Exped. to Rocky Mts., vol. 1, p. 151 (foot-note).
Missouri River, near the Platte.
1897. *Miliolites secalicus*. Harris, Bull. Am. Pal., vol. 1, p. 385 (115).

MILLEPORA Linneus, 1758.**Millepora cylindrica** Say.

1823. *Millepora cylindrica*. Say, Long's Exped. to Rocky Mts., vol. 1, p. 47 (foot-note).
Missouri River, 5 miles below Council Bluff.
1897. *Millepora cylindrica*. Harris, Bull. Am. Pal., vol. 1, p. 381 (111).

MISSOURICRINUS Miller, 1891.**Missouricrinus admonitus** Miller.

1891. *Missouricrinus admonitus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 31, pl. 4, figs. 11, 12.
Burlington Group: Sedalia, Missouri.

MODIOLA Lamark, 1801.**Modiola avonia** Dawson.

1868. *Modiola avonia*. Dawson, Acad. Geol., p. 301.
Carboniferous L. S.: Windsor, Nova Scotia.

Modiola illinoisensis Worthen.

1884. *Modiola illinoisensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 16.
St. Louis L. S. (oolite beds): Monroe County, Illinois.
1890. *Modiola illinoisensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 125, pl. 20, figs. 2, 2a.
St. Louis L. S. (oolite): Monroe County, Illinois.

Modiola minor Lea.

1853. *Modiola minor*. Lea, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 205, pl. 20, fig. 2.
Coal Formation: Wilkesbarre, Pennsylvania.

Modiola nevadensis Walcott.

1884. *Modiola? Nevadaensis*. Walcott, Pal. Eureka Dist., p. 239, pl. 19, fig. 8.
Lower Carboniferous: Eureka District, Nevada.

Modiola pooli Dawson.

1868. *Modiol. Pooli*. Dawson, Acad. Geol., p. 301, fig. 100.
Carboniferous L. S.: Shubenacadie, Windsor, and Irish Cove, Nova Scotia.

Modiola subelliptica Meek.

1866. *Clidophorus* (an *Pleurophorus*) *occidentalis*. Geinitz, Carb. und Dyas in Nebr., p. 23, tab. 2, fig. 6. (Not *Pleurophorus occidentalis* M. and H., 1858.) Nebraska City, Nebraska.
1872. *Modiola? subelliptica*. Meek, U. S. Geol. Surv. Nebr., p. 211, pl. 10, fig. 5.
Upper Coal Measures: Nebraska City, Nebraska; Riverside, 3 miles below Atchison, Kansas.

Modiola waverliensis Herrick.

1888. *Modiola waverliensis*. Herrick, Bull. Den. Univ., vol. 3, p. 63, pl. 1, fig. 9; pl. 4, fig. 10; pl. 7, fig. 29.
Waverly Group: Licking County, Ohio.
1895. *Modiola waverliensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 21.
Kinderhook: Ohio.

Modiola wyomingensis. See *Myalina wyomingensis*.**MODIOMORPHA** Hall, 1870.**Modiomorpha ambigua** Walcott.

1884. *Modiomorpha ambigua*. Walcott, Pal. Eureka Dist., p. 239, pl. 20, fig. 1.
Lower Carboniferous: Eureka District, Nevada.

Modiomorpha desiderata Walcott.

1884. *Modiomorpha? desiderata*. Walcott, Pal. Eureka Dist., p. 240, pl. 20, fig. 3.
Lower Carboniferous: Eureka District, Nevada.

Modiomorpha hyalea Hall.

- *1870. *Modiomorpha hyalea*. Hall, Prelim. Not. Lamell. Shells, 2, p. 79.
Waverly S. S.: Granville, Licking County, Ohio.
1885. *Modiomorpha hyalea*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 292, pl. 41, figs. 28-30.
Waverly S. S.: Granville, Licking County, Ohio.
1888. *Modiomorpha hyalea?* Herrick, Bull. Den. Univ., vol. 3, p. 76, pl. 10, fig. 4.
Waverly Group: Licking County, Ohio.

Modiomorpha parvula Claypole.

1886. *Modiomorpha (?) parvula*. Claypole, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 248.
Lower Coal Measures: Wilkesbarre, Pennsylvania.

Modiomorpha pintoensis Walcott.

1884. *Modiomorpha? Pintoensis*. Walcott, Pal. Eureka Dist., p. 240, pl. 20, fig. 2.
Lower Carboniferous: Eureka District, Nevada.

MONOPTERIA Meek and Worthen, 1866.**Monopteria auricula** Stevens.

1858. *Gervilla Auricula*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 265.
Coal Measures: Danville, Illinois.

Monopteria gibbosa Meek and Worthen.

1866. *Pterinea (Monopteria) gibbosa*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 340, pl. 27, figs. 11-11b.
Coal Measures: Saline Creek, Gallatin County, Illinois.

Monopteria gibbosa Meek and Worthen—Continued.

1884. *Monopteria gibbosa*. White, 13th Rep. Geol. Surv. Ind., p. 139, pl. 30, figs. 11, 12.
Coal Measures: Vermilion, Sullivan, and Posey counties, Indiana.
1886. *Monopteria (Pterinea) gibbosa*. Heilprin, 2d Geol. Surv. Penn., Ann. Rep. 1885, p. 455, fig. 11a; p. 444, fig. 11.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Monopteria (Pterinea) gibbosa*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 271, fig. 11a; p. 272, fig. 11.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1894. *Monopteria gibbosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 114, pl. 43, figs. 2a, b.
Upper Coal Measures: Kansas City, Missouri.

Monopteria longispina Cox.

1857. *Gervillia longispina*. Cox, Geol. Rep. Ky., vol. 3, p. 568, pl. 8, fig. 6.
Coal Measures: Providence, Hopkins County, Kentucky.
1894. *Monoptera longispina*. Keyes, Mo. Geol. Surv., vol. 5, p. 114, pl. 43, fig. 1.
Upper Coal Measures: Kansas City, Missouri.

Monopteria marian White.

1874. *Monopteria Marian*. White, Prelim. Rep. Inv. Foss., p. 22.
Carboniferous (Coal Measures): Camp Apache, Arizona.
1877. *Monopteria Marian*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 151, pl. 11, figs. 4a-c.
Carboniferous: Camp Apache, Maricopa County, Arizona.

MONOTIS Bronn, 1824.**Monotis gregaria Meek and Worthen.**

1870. *Monotis? gregaria*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 38.
Coal Measures: Jacksonville, Illinois.
1873. *Monotis? gregaria*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 573, pl. 26, fig. 5.
Coal Measures: Jacksonville, Illinois.
1894. *Monotis? gregaria*. Keyes, Mo. Geol. Surv., vol. 5, p. 114.
Upper Coal Measures: Kansas City, Missouri.

Monotis halli Swallow.

1858. *Monotis Halli*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 185.
Permian: Valley of Cottonwood and near Council Grove, Kansas.

Monotis hawni. See Pseudomonotis hawni.**Monotis radialis. See Pseudomonotis radialis.****Monotis speluncaria Schlotheim.**

1859. *Monotis speluncaria*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 396.
Permian L. S.: Guadalupe Mountains.

Monotis speluncaria var. americana Swallow.

1858. *Monotis speluncaria var. americana*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 186.
Upper Permian: Near Smoky Hill Fork and Council Grove, Kansas.

Monotis variabilis Swallow.

1858. *Monotis variabilis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 187.
Lower Permian: Valley of Cottonwood, Kansas.

Monotis (species undetermined).

1859. *Monotis* sp. (?) Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 397.
White Permian L. S.: Guadalupe Mountains.

MOOREA Jones and Kirkby, 1867.**Moorea granosa** Ulrich.

1891. *Moorea granosa*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 306, pl. 12, figs. 9a, b.
Chester Group: Near Grayson Springs, Kentucky.

MUNSTERO CERAS Hyatt, 1883.**Munsteroceras oweni** Hall.

1860. *Goniatites oweni*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 100, figs. 11, 12.
Goniatite L. S.: Rockford, Indiana.
1862. *Goniatites Oweni*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 364.
Marshall S. S.: Pointe aux Barques, Michigan.
1879. *Goniatites Oweni*. Hall, Pal. N. Y., vol. 5, pt. 2, p. 470, pl. 73, figs. 3-8; pl. 74, fig. 9.
Goniatite L. S.: Rockford, Indiana.
1881. *Goniatites oweni*. White, 2d. Ann. Rep. Dept. Stat. and Geol. Ind., p. 514, pl. 7, figs. 3, 4.
Kinderhook Group: Rockford, Indiana.
1886. *Goniatites Oweni*. Hall, 5th Ann. Rep. N. Y. State Geol., pl. (128) 13, figs. 4, 7.
Goniatites L. S.: Rockford, Indiana.
1888. *Goniatites Oweni*. Beecher, Pal. N. Y., vol. 5, pt. 2, Supp. p. 40, pl. 128, figs. 4, 7.
Goniatite L. S.: Rockford, Indiana.
1897. *Glyphioceras Oweni*. Foord and Crick, Cat. Foss. Ceph., pt. 3, p. 188, fig. 89.
Goniatite Limestone, Kinderhook Group: Indiana, U. S. A.

*** Munsteroceras parallum** Hall.

1860. *Goniatites oweni* var. *parallela*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 100, figs. 13, 14.
Goniatite L. S.: Rockford, Indiana.
1862. *Goniatites Oweni* var. *parallela*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 364.
Marshall S. S.: Pointe aux Barques, Michigan.
1879. *Goniatites Oweni* var. *parallela*. Hall, Pal. N. Y., vol. 5, pt. 2, p. 473, pl. 73, figs. 1, 2; pl. 74, fig. 10.
Goniatite L. S.: Rockford, Indiana.
1883. *Munsteroceras parallelum*. Hyatt, Proc. Bost. Soc. Nat. Hist., vol. 22, p. 327.
1897. *Glyphioceras parallelum*. Foord and Crick, Cat. Foss. Ceph., pt. 3, p. 189, fig. 90.
Goniatite Limestone, Kinderhook Group: Indiana, U. S. A.

MURCHISONIA D'Archiac and De Verneuil, 1841.**Murchisonia archimedeia** McChesney.

1861. *Murchisonia archimedeia*. McChesney, Desc. New Spec. Pal. Foss., p. 89.
Coal Measures: La Salle, Illinois.
1865. *Murchisonia archimedeia*. McChesney, Ill. New Spec. Foss., pl. 2, figs. 16a-b.
1868. *Murchisonia archimedeia*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 48, pl. 2, figs. 16a, b.
Coal Measures; La Salle, Illinois.

Murchisonia attenuata Hall.

1856. *Murchisonia attenuata*. Hall, Trans. Albany Inst., vol. 4, p. 27.
St. Louis L. S.: Spargen Hill, Indiana.

***Murchisonia attenuata* Hall—Continued.**

1882. *Murchisonia attenuata*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 88, pl. 9, fig. 13.
St. Louis Group: Spergen Hill, Indiana.
1883. *Murchisonia attenuata*. Hall, 12th Rep. Geol. Surv. Ind., p. 360, pl. 32, fig. 13.
St. Louis Group: Spergen Hill, Indiana.

***Murchisonia copii* White.**

1881. *Murchisonia copei*. White, U. S. Geol. Surv. W. 100 Merid., vol. 3, Supp. Appendix, p. xxxi, pl. 3, figs. 10a, b.
Carboniferous: Near Taos, New Mexico.

Murchisonia elegantula*. See *Pleurotomaria elegantula*.**Murchisonia gypsea* Dawson.**

1868. *Murchisonia gypsea*. Dawson, Acad. Geol., p. 810, fig. 123.
Carboniferous L. S.: Windsor, Nova Scotia.

***Murchisonia indianensis* Miller and Gurley.**

1896. *Murchisonia indianensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 18, pl. 2, figs. 31, 32.
Knobstone Group: New Albany, Indiana.

***Murchisonia inornata* Meek and Worthen.**

1866. *Murchisonia inornata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 274.
Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1873. *Murchisonia inornata*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 599, pl. 28, fig. 6.
Coal Measures: Hodge's Creek, Macoupin County, Illinois.

***Murchisonia insculpta* Hall.**

1866. *Murchisonia insculpta*. Hall, Trans. Albany Inst., vol. 4, p. 26.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana.
1882. *Murchisonia insculpta*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 85, pl. 9, fig. 18.
St. Louis Group: Spergen Hill and Bloomington, Indiana.
1883. *Murchisonia insculpta*. Hall, 12th Rep. Geol. Surv. Ind., p. 369, pl. 32, fig. 18.
St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.

***Murchisonia kansasensis* Swallow.**

1858. *Murchisonia* (?) *Kansasensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 195.
Permian: Valley of Cottonwood, Kansas.

***Murchisonia keokuk* Worthen.**

1890. *Murchisonia keokuk*. Worthen, Geol. Surv. Ill., vol. 8, p. 141, pl. 23, figs. 2, 2a.
Keokuk, L. S.: Keokuk, Iowa.

***Murchisonia lasallensis* Worthen.**

1890. *Murchisonia lasallensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 141, pl. 25, figs. 7, 7a.
Upper Coal Measures: La Salle, Illinois.

***Murchisonia limitaris* Hall.**

1860. *Murchisonia* (*Pleurotomaria*?) *limitaris*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 108.
Goniatite L. S.: Rockford, Indiana.

***Murchisonia minima*. See *Aclisina minuta*.**

Murchisonia nebrascensis Geinitz.

1866. *Murchisonia Nebrascensis*. Geinitz, Carb. und Dyas in Nebr., p. 12, tab. 1, fig. 17.

Nebraska City, Nebraska.

1872. *Murchisonia Nebrascensis*. Meek, U. S. Geol. Surv. Nebr., p. 234, pl. 11, fig. 6.
Upper Coal Measures: Nebraska City, Nebraska.

Murchisonia neglecta Winchell.

1863. *Murchisonia neglecta*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 20.
Yellow S. S.: Burlington, Iowa.

Murchisonia obsoleta Meek.

1871. *Murchisonia obsoleta*. Meek, Proc. Acad. Nat. Sci. Phil., p. 175.
Coal Measures: Danville, Illinois.

Murchisonia perversa Swallow.

1858. *Murchisonia (?) perversa*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 195.
Permian: Valley of Cottonwood, Kansas.

Murchisonia proliza White and Whitfield.

1862. *Murchisonia ? proliza*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 303.
Chemung Group: Burlington, Iowa.
1870. *Murchisonia proliza*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 257.
Waverly Group: Sciotoville, Ohio.
1889. *Murchisonia proliza*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 297.
Kinderhook Group: Burlington, Iowa.

Murchisonia pygmæa Rowley.

1895. *Murchisonia (?) pygmæa*. Rowley, Am. Geol., vol. 16, p. 222, fig. 20.
Louisiana L. S.: Louisiana, Missouri.

Murchisonia quadricarinata Worthen.

1884. *Loxonema quadri-carinatus*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 7.
Coal Measures: Peoria County, Illinois.
1890. *Loxonema quadri-carinatum*. Worthen, Geol. Surv. Ill., vol. 8, p. 140, pl. 23, figs. 9, 9a.
Coal Measures: Peoria County, Illinois.
1891. *Murchisonia quadricarinata*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 254.
Lower Coal Measures: Des Moines, Iowa.

Murchisonia quadricincta Winchell.

1863. *Murchisonia quadricincta*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 19.
Yellow S. S.: Burlington, Iowa.
1870. *Murchisonia quadricincta*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 257.
Waverly Group: Sciotoville, Ohio.
1888. *Murchisonia quadricincta?* Herrick, Bull. Den. Univ., vol. 3, p. 87, pl. 2, fig. 28.
Waverly Group: Licking County, Ohio.

Murchisonia shumardana Winchell.

1863. *Murchisonia Shumardiana*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 20.
Yellow S. S.: Burlington, Iowa.

Murchisonis subtæniata. See *Orthonema subtæniata*.**Murchisonia terebra** White.

1879. *Murchisonia terebra*. White, Bull. U. S. G. and G. Surv. Terr., vol. 5, p. 219.
Carboniferous: Wild Band Pockets, Northern Arizona, 15 miles south of Pipe Spring.

Murchisonia terebra White—Continued.

1880. *Murchisonia terebra*. White, Cont. to Inv. Pal., No. 6, p. 139, pl. 34, fig. 4a.
Upper Carboniferous: Wild Band Pockets, northern Arizona, 15 miles south of Pipe Spring.
1894. *Murchisonia terebra*. Keyes, Mo. Geol. Surv., vol. 5, p. 146, pl. 49, fig. 4.
Upper Coal Measures: Kansas City, Missouri.

Murchisonia terebriformis Hall.

1856. *Murchisonia terebriformis*. Hall, Trans. Albany Inst., vol. 4, p. 28.
St. Louis, L. S.: Bloomington, Indiana.
1882. *Murchisonia terebriformis*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 86, pl. 9, figs. 15, 16.
St. Louis Group: Bloomington, Indiana.
1883. *Murchisonia terebriformis*. Hall, 12th Rep. Geol. Surv. Ind., p. 362, pl. 32, figs. 15, 16.
St. Louis Group: Bloomington and Lanesville, Indiana.

Murchisonia texana Shumard.

1860. *Murchisonia Texana*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 626.
Coal Measures: Young County, Texas, 9 miles east of Indian Reservation.

Murchisonia tricingulata Dawson.

1888. *Murchisonia tricingulata*. Dawson, Acad. Geol., p. 310.
Carboniferous L. S.: Windsor and Pugwash, Nova Scotia.

Murchisonia turritella Hall.

1856. *Murchisonia turritella*. Hall, Trans. Albany Inst., vol. 4, p. 27.
St. Louis L. S.: Spergen Hill, Indiana.
1882. *Murchisonia turritella*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 88, pl. 9, fig. 12.
St. Louis Group: Spergen Hill, Indiana.
1883. *Murchisonia turritella*. Hall, 12th Rep. Geol. Surv. Ind., p. 361, pl. 32, fig. 12.
St. Louis Group: Spergen Hill and Lanesville, Indiana.

Murchisonia vermicula Hall.

1856. *Murchisonia vermicula*. Hall, Trans. Albany Inst., vol. 4, p. 27.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana.
1882. *Murchisonia vermicula*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 87, pl. 9, fig. 11.
St. Louis Group: Spergen Hill and Bloomington, Indiana.
1883. *Murchisonia vermicula*. Hall, 12th Rep. Geol. Surv. Ind., p. 361, pl. 32, fig. 11.
St. Louis Group: Lanesville and Bloomington, Indiana.

Murchisonia vineta Hall.

1856. *Loxonema vineta*. Hall, Trans. Albany Inst., vol. 4, p. 28.
St. Louis L. S.: Spergen Hill, Indiana.
1882. *Murchisonia vineta*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 86, pl. 9, fig. 14.
St. Louis Group: Spergen Hill, Indiana.
1883. *Murchisonia vineta*. Hall, 12th Rep. Geol. Surv. Ind., p. 363, pl. 32, fig. 14.
St. Louis Group: Spergen Hill, Indiana.

Murchisonis (species undetermined).

1858. *Murchisonia subangulata* Verneuil (?), Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 196.
Upper Permian: Kansas.
1870. *Murchisonia* sp. ? Winchell, Proc. Am. Phil. Soc., vol. 11, p. 260.
Waverly Group: Near Shafer's, Pennsylvania.

Murchisonia (species undetermined)—Continued.

1888. *Murchisonia* sp. Herriek, Bull. Den. Univ., vol. 4, pl. 7, fig. 6.
Waverly Group: Moot's Run, Licking County, Ohio.
1891. *Murchisonia* — ? White, Bull. U. S. Geol. Surv. No. 77, p. 25, pl. 3,
figs. 12, 13.
Permian: Military Crossing, Baylor County, Texas.
1895. *Murchisonia* sp. Herriek, Geol. Surv. Ohio, vol. 7, pl. 18, fig. 6.
Cuyahoga Shale: Moat's Run, Licking County, Ohio.

MYALINA De Koninck, 1844.**Myalina angulata** Meek and Worthen.

1860. *Myalina angulata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 455.
Chester L. S.: Chester, Illinois.
1866. *Myalina angulata*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 300, pl. 23,
figs. 7a, b.
Chester Group: Chester, Illinois.
1894. *Myalina angulata*. Keyes, Mo. Geol. Surv., vol. 5, p. 118.
Kaskaskia L. S.: Ste. Mary, Missouri.

Myalina apachesi Marcou.

1858. *Myalina apachesi*. Marcou, Geol. N. A., p. 44, pl. 7, figs. 6, 6a.
Mountain L. S.: Near Pecos Village, New Mexico.

Myalina arkansana Weller.

1897. *Myalina arkansana*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 262, pl. 19,
figs. 16, 17.
Batesville S. S.: Batesville, Arkansas.

Myalina aviculoides Meek and Hayden.

1860. *Myalina aviculoides*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 184.
Permian: Cottonwood Creek, Kansas.
1864. *Myalina aviculoides*. Meek and Hayden, Pal. Up. Mo., p. 51, pl. 2, figs. 8a-d.
Permian: Cottonwood Creek, Kansas.
1877. *Myalina aviculoides*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4,
p. 275, pl. 6, fig. 8.
Permo-Carboniferous L. S.: Foothills southeast of Salt Lake City, Wahsatch Range, Utah.
1891. *Myalina aviculoides*. White, Bull. U. S. Geol. Surv. No. 77, p. 28, pl. 2, fig. 12.
Permian: Goodwin Creek, Baylor County, Texas.

Myalina aviculoides. See *Myalina rara*.**Myalina concava** Swallow.

1858. *Mytilus* (*Myalina*?) *concavus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1,
p. 188.
Permian(?) : Valley of the Kansas, Kansas.

Myalina concentrica Meek and Worthen.

1860. *Myalina concentrica*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 456,
Warsaw L. S.: Spergen Hill, Indiana.
1866. *Myalina concentrica*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 281, pl. 9,
figs. 3a-c.
St. Louis Group: Spergen Hill, Indiana.

Myalina congeneris Walcott.

1884. *Myalina congeneris*. Walcott, Pal. Eureka Dist., p. 237, pl. 19, fig. 6; pl. 22,
fig. 10.
Lower Carboniferous: Eureka District, Nevada.

Myalina cuneiformis Gurley.

1883. *Myalina cuneiformis*. Gurley, New Carb. Foss., Bull. No. 1, p. 4.
Upper Carboniferous: Ouray, Colorado.

Myalina deltoidea Gabb.

1859. *Myalina deltoidea*. Gabb, Proc. Acad. Nat. Sci. Phil., p. 297.
Coal Measures: Fort Belknap, Texas.
1860. *Myalina deltoidea*. Gabb, Proc. Acad. Nat. Sci. Phil., p. 55, pl. 1, figs. 1a-c.
Carboniferous.

Myalina imbricaria Winchell.

1862. *Myalina imbricaria*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 412.
Marshall S. S.: Moscow, Michigan.

Myalina kansasensis Shumard.

1858. *Myalina Kansasensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 213.
Upper Coal Measures: Santa Fé road, south of Lecompton; 9 miles southwest of Council Grove; Sac and Fox Agency; headwaters of Osage River, and valley of Verdigris River, Kansas. Missouri River bluffs, below mouth of Platt River, Nebraska.
1894. *Myalina kansasensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 117, pl. 43, fig. 5.
Upper Coal Measures: Kansas City, Missouri.

Myalina keokuk Worthen.

1875. *Myalina Keokuk*. Worthen, Geol. Surv. Ill., vol. 6, p. 524, pl. 30, fig. 5.
Keokuk L. S.: Keokuk, Iowa; Warsaw, Nauvoo, and Hamilton, Illinois.
1894. *Myalina keokuk*. Keyes, Mo. Geol. Surv., vol. 5, p. 117.
Keokuk L. S.: Bonaparte, Iowa; St. Francisville, Missouri.

Myalina lowensis Winchell.

1865. *Myalina Lowensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 127.
Base of Burlington L. S.: Burlington, Iowa.

Myalina meliniformis Meek and Worthen.

1866. *Myalina meliniformis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 343, pl. 27, fig. 3.
Coal Measures: Saline Creek, Gallatin County, Illinois (†).

Myalina michiganensis Winchell.

1862. *Myalina Michiganensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 411.
Marshall Group: Marshall and Moscow, Michigan.
1865. *Myalina Michiganensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 127.
Marshall Group: Napoleon Cut, Jackson County and German's Quarry, Hillsdale County, Michigan.
1888. *Myalina michiganensis?* Herrick, Bull. Den. Univ., vol. 3, p. 63, pl. 4, fig. 6.
Waverly Group: Licking County, Ohio.
1895. *Myalina michiganensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 22.
Kinderhook: Ohio.

Myalina monroensis Worthen.

1884. *Myalina monroensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 15.
Oolitic beds of St. Louis L. S.: Monroe County, Illinois.
1890. *Myalina monroensis*. Worthen Geol. Surv. Ill., vol. 8, p. 127, pl. 20, figs. 10, 10a.
St. Louis L. S. (oolite): Monroe County, Illinois.

Myalina nemesi Walcott.

1884. *Myalina Nemesi*. Walcott, Pal. Eureka Dist., p. 237, pl. 19, fig. 5, pl. 22, fig. 7.
Lower Carboniferous: Eureka District, Nevada.

Myalina nesus Walcott.

1884. *Myalina Nesus*. Walcott, Pal. Eureka Dist., p. 238, pl. 22, fig. 8, 8a.
Lower Carboniferous: Eureka District, Nevada.

***Myalina perattenuata* Meek and Hayden.**

1858. *Myalina (Mytilus) perattenuata*. Meek and Hayden, Trans. Albany Inst., vol. 4, p. 77.
Permian: Smoky Hill Fork, Kansas and Missouri rivers.
1859. *Myalina (Mytilus) perattenuata*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 28.
Upper Coal Measures: Smoky Hill River, Kansas.
1864. *Myalina perattenuata*. Meek and Hayden, Pal. Up. Mo., p. 32, pl. 1, figs. 12a, b.
Coal Measures: Opposite the northern boundary of Missouri on the Missouri River.
1873. *Myalina perattenuata*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 582, pl. 26, fig. 11.
Coal Measures: Springfield, Illinois.
1891. *Myalina perattenuata*. White, Bull. U. S. Geol. Surv. No. 77, p. 28, pl. 4, figs. 13-15.
Permian: Goodwin Creek and Military Crossing, Baylor County, Texas; Camp Creek, Archer County, Texas.
1894. *Myalina perattenuata*. Keyes, Mo. Geol. Surv., vol. 5, p. 118.
Upper Coal Measures: Kansas City, Missouri.

***Myalina permiana* Swallow.**

1858. *Mytilus (Myalina) Permianus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 187.
Permian (?): Kansas.
1864. *Myalina permiana*. Meek and Hayden, Pal. Up. Mo., p. 52, pl. 2, figs. 7a-c.
Permian: Smoky Hill Fork of Kansas River, and Cottonwood Creek, Kansas.
1877. *Myalina Permiana*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 276, pl. 6, fig. 7.
Permo-Carboniferous: Foothills southeast of Salt Lake City, Wahsatch Range, Utah.
1881. *Myalina permiana*. White, U. S. Geog. Surv. W. 100 Merid., vol. 3, Supp., Appendix, p. xxv, pl. 3, figs. 1a-d.
Carboniferous: Coyote Creek, New Mexico.
1891. *Myalina permiana*. White Bull. U. S. Geol. Surv. No. 77, p. 28, pl. 4, figs. 16-19.
Permian: Goodwin Creek and Military Crossing, Baylor County, Texas; Camp Creek, Archer County, Texas.

***Myalina pernaformis* Cox.**

1857. *Myalina pernaformis*. Cox, Geol. Rep. Ky., vol. 3, p. 569, pl. 8, fig. 8.
Coal Measures: Providence, Hopkins County, Kentucky.

***Myalina pterineiformis* Winchell.**

1862. *Myalina pterineiformis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 412.
Marshall Group: Point aux Barques, Michigan.

***Myalina rara* Winchell.**

1862. *Myalina aviculoides*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 412. (Not *M. aviculoides* M. & H., 1860.)
Marshall S. S.: Marshall, Michigan.
1870. *Myalina rara*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 390.

***Myalina recta* Shumard.**

1858. *Myalina recta*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 212.
Permian: Clifton Park, Kansas.
1859. *Myalina recta*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 396.
Permian: Guadalupe Mountains.

***Myalina recurvirostris* Meek and Worthen.**

1860. *Myalina recurvirostra*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 456.
Coal Measures: Near Springfield, Illinois.
1866. *Myalina recurvirostris*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 344, pl. 26, figs. 9a-c.
Upper Coal Measures: Lasalle, Illinois.
1884. *Myalina recurvirostris*. White, 13th Rep. Geol. Surv. Ind., p. 140, pl. 29, figs. 3, 4.
Upper Coal Measures: Indiana.
1894. *Myalina recurvirostris*. Keyes, Mo. Geol. Surv., vol. 5, p. 117, pl. 45, figs. 1a, b.
Upper Coal Measures: Kansas City, Missouri.

***Myalina sancti-ludovici* Worthen.**

1873. *Myalina St. Ludovici*. Worthen, Geol. Surv. Ill., vol. 5, p. 540, pl. 22, fig. 3.
St. Louis L. S.: Alton, Ill.; St. Louis, Missouri.
1894. *Myalina sancti-ludovici*. Keyes, Mo. Geol. Surv., vol. 5, p. 117.
St. Louis L. S.: St. Louis, Missouri.

***Myalina squamosa* Sowerby.**

1858. *Mytilus squamosus* (?). Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 188.
Lower Permian: Valley of Cottonwood, Kansas.
1859. *Myalina squamosa*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 396.
White Permian L. S.: Guadalupe Mountains.

***Myalina subquadrata* Shumard.**

1855. *Myalina subquadrata*. Shumard, Geol. Surv. Mo., p. 207, pl. C, fig. 17.
Upper Coal Measures: On Missouri River, 2 miles below the mouth of the Little Nemaha.
1864. *Myalina subquadrata*. Meek and Hayden, Pal. Up. Mo., p. 32, figs. A, B.
Coal Measures: Leavenworth City, Kansas.
1866. *Myalina subquadrata*. Geinitz, Carb. und Dyas in Nebr., p. 27, tab. 3, figs. 25, 26.
Nebraska City, Nebraska.
1872. *Myalina subquadrata*. Meek, U. S. Geol. Surv. Nebr., p. 202, pl. 4, fig. 12; pl. 9, fig. 6.
Upper Coal Measures: Nebraska City, Bennett's Mill and Bellevue, Nebraska.
1884. *Myalina subquadrata*. White, 13th Rep. Geol. Surv. Ind., p. 140, pl. 29, figs. 1, 2; pl. 30, figs. 1, 2.
Upper Coal Measures: Knox, Gibson, and Posey counties, Indiana.
1886. *Myalina subquadrata*. Heilprin, 2d Geol. Surv. Penn., Ann. Rep. 1885, p. 456; p. 446, fig. 15; p. 454, fig. 15a.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Myalina subquadrata*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 273, fig. 15a; p. 274, fig. 15.
Mill Creek L. S. Upper Coal Measures: Wilkesbarre, Pennsylvania.
1894. *Myalina subquadrata*. Keyes, Mo. Geol. Surv., vol. 5, p. 118, pl. 44, figs. 1a, b, 2a, b.
Upper Coal Measures: Kansas City, Missouri.

***Myalina swallowi* McChesney.**

1860. *Myalina swallowi*. McChesney, Desc. New Pal. Foss., p. 57.
Coal Measures: Charbonier, and 12 miles northwest of Richmond, Missouri.
1865. *Myalina swallowi*. McChesney, Ill. New Spec. Foss., pl. 2, fig. 6a-b.
1866. *Aucella Hausmani*. Geinitz, Carb. und Dyas in Nebr., p. 25, tab. 2, fig. 8.
Nebraska City, Nebraska.

***Myalina swallovi* McChesney—Continued.**

1866. *Myalina Swallovi*. Meek and Worthen, Geol. Surv., Ill., vol. 2, p. 341, pl. 27, figs. 1a-d.
Coal Measures: Saline Creek, Gallatin County, Illinois.
1868. *Myalina Swallowt.* McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 41, pl. 2, figs. 6a, b.
Coal Measures: Charbonier, and 12 miles northwest of Richmond, Missouri.
1872. *Myalina (?) swallovi*. Meek, U. S. Geol. Surv. Nebr., p. 201, pl. 9, figs. 7a, b.
Upper Coal Measures: Nebraska City, Nebraska.
Upper and Lower Coal Measures: Illinois; Kentucky; Iowa; Nebraska; Kansas; Missouri.
1877. *Myalina ? Swallovi*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 152, pl. 11, fig. 8a.
Carboniferous: Camp Apache, Maricopa County, Arizona.
1884. *Myalina (?) Swallovi*. White, 13th Rep. Geol. Surv. Ind., p. 141, pl. 30, figs. 6-8.
Coal Measures: Park, Vermilion, and Vigo counties, Indiana.
1877. *Myalina (?) swallovi*. Herrick, Bull. Den. Univ., vol. 2, p. 37, pl. 4, fig. 6.
Coal Measures: Flint Ridge, Ohio.
1888. *Myalina swallovi*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 232.
Lower Coal Measures: Des Moines, Iowa.
1894. *Myalina swallovi*. Keyes, Mo. Geol. Surv., vol. 5, p. 119, pl. 43, figs. 3a-c.
Lower Coal Measures: Charbonier, Missouri.
Upper Coal Measures: Richmond and Kansas City, Missouri.

***Myalina wyomingensis* Lea.**

1853. *Modiola Wyomingensis*. Lea, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 205, pl. 20, fig. 1a.
Coal Formation: Wilkesbarre, Pennsylvania.
1886. *Modiola wyomingensis*. Claypole, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 247.
Lower Coal Measures: Wilkesbarre, Pennsylvania.

***Myalina* (species undetermined).**

1876. *Myalina* — ? White, Powell's Rep. Geol. Uinta Mts., p. 91.
Upper and Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1877. *Myalina* — (?) White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 152.
Carboniferous: Camp Apache, Maricopa County, Arizona.
1877. *Myalina* sp. ? Herrick, Bull. Den. Univ., vol. 2, p. 37, pl. 4, fig. 20.
Coal Measures: Flint Ridge, Ohio.
1887. *Myalina* (cf. *recurvirostris*). Herrick, Bull. Den. Univ., vol. 2, p. 37, pl. 5, fig. 4.
Coal Measures: Flint Ridge, Ohio.
1887. *Myalina* sp. Herrick, Bull. Den. Univ., vol. 2, p. 146, pl. 14, figs. 1, 1a.
Coal Measures: Flint Ridge, Ohio.
1887. *Myalina ?* sp. ? Herrick, Bull. Den. Univ., vol. 2, p. 146, pl. 14, fig. 24.
Coal Measures: Flint Ridge, Ohio.
1887. *Myalina ?* Herrick, Bull. Den. Univ., vol. 2, pl. 4, fig. 12.
Coal Measures: Flint Ridge, Ohio.

MYLACRIS Scudder, 1868.***Mylacris ampla* Scudder.**

1895. *Mylacris ampla*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 45, pl. 2, fig. 1.
Lower Coal Measures: Mazon Creek, Illinois.

***Myiacris anthracophila* Scudder.**

1868. *Myiacris anthracophila*. Scudder, Geol. Surv. Ill., vol. 3, p. 568, figs. 5, 6.
Carboniferous: Mazon Creek, Grundy County, Illinois.
1879. *Myiacris anthracophilum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 45,
pl. 5, figs. 6-8.
Lower Coal Measures: Colchester, Illinois.
1884. *Myiacris anthracophilum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 307.
Lower Coal Measures: Colchester, Illinois.
1890. *Myiacris anthracophilum*. Scudder, Foss. Insc. N. A., vol. 1, pp. 65, 271, pl. 5,
figs. 6-8.
Lower Coal Measures: Colchester, Illinois.
1895. *Myiacris anthracophila*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 43, pl. 1,
figs. 1-4.
Lower Coal Measures: Colchester, Illinois.

***Myiacris antiqua* Scudder.**

1884. *Myiacris antiquum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 300.
Carboniferous: Mazon Creek, Illinois.
1890. *Myiacris antiquum*. Scudder, Foss. Insc. N. A., vol. 1, p. 264.
Carboniferous: Mazon Creek, Illinois.
1895. *Myiacris antiqua*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 46, pl. 2,
figs. 5, 6.
Lower Coal Measures: Mazon Creek, Illinois.

***Myiacris bretonensis* Scudder.**

- *1874. *Blattina bretonensis*. Scudder, Can. Nat., vol. 7, p. 271, fig. 1.
Carboniferous: Sydney, Cape Breton.
1878. *Blattina Bretonensis*. Dawson, Supp. to 2d Ed. Acad. Geol., p. 53, fig. 5.
Carboniferous: Nova Scotia.
1879. *Myiacris bretonense*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 41, pl. 5,
fig. 1.
Middle Coal Measures: Sydney, Cape Breton.
1884. *Myiacris bretonense*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 300.
Carboniferous: Sydney, Cape Breton.
1890. *Myiacris bretonensis*. Scudder, Foss. Insc. N. A., vol. 1, pp. 61, 264, pl. 5, fig. 1.
Middle Coal Measures: Sydney, Cape Breton.
1895. *Myiacris bretonensis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 41.
Coal Measures: Sydney, Cape Breton.

***Myiacris carbonum* Scudder.**

1884. *Myiacris carbonum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 304, pl. 27,
figs. 6, 7, 10.
Carboniferous: Cannelton, Pennsylvania.
1890. *Myiacris carbonum*. Scudder, Foss. Insc. N. A., vol. 1, p. 268, pl. 13,
figs. 6, 7, 10.
Carboniferous: Wilkesbarre and Cannelton, Pennsylvania.
1895. *Myiacris carbonum*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 47.
Coal Measures: Cannelton and Wilkesbarre, Pennsylvania.

***Myiacris elongata* Scudder.**

1895. *Myiacris elongata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 41, pl. 1, fig. 6.
Lower Coal Measures: Mazon Creek, Illinois.

***Myiacris gurleyi* Scudder.**

1895. *Myiacris gurleyi*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 43, pl. 1, fig. 5.
Lower Coal Measures: Mazon Creek, Illinois.

***Myiacris heeri* Scudder.**

- *1874. *Blattina heeri*. Scudder, Can. Nat., vol. 7, p. 272; fig. 2, p. 271.
Carboniferous: Sydney, Cape Breton.

Mylacris heeri Scudder—Continued.

1878. *Blattina Heeri*. Dawson, Supp. 2d Ed. Acad. Geol., p. 53, fig. 6.
Carboniferous: Nova Scotia.
1879. *Mylacris Heeri*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 43, pl. 5, fig. 11.
Middle Coal Measures: Sydney, Cape Breton.
1884. *Mylacris Heeri*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 300.
Carboniferous: Sidney, Cape Breton.
1890. *Mylacris Heeri*. Scudder, Foss. Insc. N. A., vol. 1, pp. 63, 264, pl. 5, fig. 11.
Middle Coal Measures: Sydney, Cape Breton.
1895. *Mylacris heeri*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 46.
Coal Measures: Sydney, Cape Breton.

Mylacris lucifuga Scudder.

1884. *Mylacris lucifugum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 301, pl. 27, fig. 8.
Carboniferous: Pittston, Pennsylvania.
1890. *Mylacris lucifugum*. Scudder, Foss. Insc. N. A., vol. 1, p. 265, pl. 13, fig. 8.
Carboniferous: Pittston, Pennsylvania.
1895. *Mylacris lucifuga*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 47.
Coal Measures: Near Pittston, Pennsylvania.

Mylacris mansfieldi Scudder.

1879. *Mylacris Mansfieldii*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 47, pl. 5, fig. 15.
Lower Coal Measures: Cannelton, Pennsylvania.
1884. *Mylacris Mansfieldi*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 308.
Lower Coal Measures; Cannelton, Pennsylvania.
1890. *Mylacris mansfieldi*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 377.
Coal Measures: Near Georgetown, Vermilion County, Illinois.
1890. *Mylacris mansfieldi*. Scudder, Foss. Insc. N. A., vol. 1, pp. 67, 272, 401, pl. 5, fig. 15.
Lower Coal Measures: Cannelton, Pennsylvania, and near Georgetown, Vermilion County, Illinois.
1895. *Mylacris mansfieldi*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 47.
Lower Coal Measures: Cannelton, Pennsylvania.

Mylacris ovalis Scudder.

1884. *Mylacris ovale*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 308, pl. 27, fig. 5.
Carboniferous: Cannelton, Pennsylvania.
1890. *Mylacris ovalis*. Scudder, Foss. Insc. N. A., vol. 1, p. 272, pl. 13, fig. 5.
Carboniferous: Cannelton, Pennsylvania.
1895. *Mylacris ovalis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 47.
Lower Coal Measures: Cannelton, Pennsylvania.

Mylacris packardii Scudder.

1893. *Mylacris packardii*. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 11, pl. 1, figs. e, g.
Carboniferous: Bristol and Pawtucket, Rhode Island.
1895. *Mylacris packardii*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 41, pl. 1, figs. 2, 3.
Lower (?) Coal Measures: Bristol, Rhode Island.

Mylacris pennsylvanica Scudder.

1879. *Mylacris pennsylvanicum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 44, pl. 5, figs. 13, 14.
Lower Coal Measures: Cannelton, Pennsylvania.

***Myiacris pennsylvanica* Scudder—Continued.**

1884. *Myiacris pennsylvanicum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 302, pl. 27, fig. 11.
Carboniferous: Pittston, Pennsylvania.
1890. *Myiacris pennsylvanicum*. Scudder, Foss. Insc. N. A., vol. 1, pp. 64, 266, pl. 5, figs. 13, 14; pl. 13, fig. 11.
Carboniferous: Cannelton, Pennsylvania.
1895. *Myiacris pennsylvanica*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 47.
Lower Coal Measures: Cannelton, Pennsylvania.

***Myiacris priscovolans* Scudder.**

1884. *Myiacris priscovolans*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 307, pl. 27, fig. 9.
Carboniferous: Cannelton, Pennsylvania.
1890. *Myiacris priscovolans*. Scudder, Foss. Insc. N. A., vol. 1, p. 271, pl. 13, fig. 9.
Carboniferous: Cannelton, Pennsylvania.
1895. *Myiacris priscovolans*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 46.
Lower Coal Measures: Cannelton, Pennsylvania.

***Myiacris* (species undetermined).**

1895. *Myiacrida* sp. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 55, pl. 2, fig. 4.
Lower Coal Measures: Mazon Creek, Illinois.

MYTILARCA Hall, 1870.***Mytilarca fibristriata* White and Whitfield.**

1862. *Mytilus fibristriatus*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 296.
Chemung Group: Burlington, Iowa.
1862. *Mytilus Whitfieldianus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 413.
Marshall Group: Holland, Ottawa County, and Marshall, Michigan.
1863. *Mytilus Whitfieldianus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 11.
Yellow S. S.: Burlington, Iowa.
1884. *Mytilarca fibristriata*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 264, pl. 33, figs. 6, 7; pl. 87, fig. 6.
Yellow S. S.: Burlington, Iowa.
1888. *Mytilarca fibristriatus*. Herrick, Bull. Den. Univ., vol. 4, p. 31, pl. 4, fig. 21.
Waverly Group: Moot's Run, Licking County, Ohio.
1889. *Mytilarca fibristriata*. Herrick, Am. Geol., vol. 3, pl. 2, fig. 21.
1895. *Mytilarca fibristriata*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 21.
Cuyahoga Shale: Moot's Run, Ohio.

***Mytilarca jessiae* Miller and Gurley.**

1896. *Mytilarca jessiae*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 14, pl. 2, figs. 1-6.
Chouteau L. S.: Near Sedalia, Missouri.

***Mytilarca occidentalis* White and Whitfield.**

1862. *Mytilus occidentalis*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 297.
Chemung Group: Burlington, Iowa.
1884. *Mytilarca occidentalis*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 263, pl. 33, figs. 3-5; pl. 87, fig. 11.
Yellow S. S.: Burlington, Iowa.
1888. *Mytilarca occidentalis?* Herrick, Bull. Den. Univ., vol. 4, p. 32, pl. 11, fig. 1.
Waverly Group: Medina County, Ohio.

MYTILUS Linnaeus, 1758.

Mytilus concavus. See *Myalina concava*.

Mytilus fibristriatus. See *Mytilarca fibristriata*.

Mytilus occidentalis. See *Mytilarca occidentalis*.

Mytilus ottawensis Shumard.

1858. *Mytilus Ottawaensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 211.
Upper Coal Measures: Valley of Verdigris River, Kansas.

Mytilus permianus. See *Myalina permiana*.

Mytilus squamosus. See *Myalina squamosa*.

Mytilus tenuiradiatus Shumard.

1858. *Mytilus tenuiradiatus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 211.
Upper Coal Measures: Valley of Verdigris River, Kansas.

Mytilus whitfieldanus. See *Mytilarca fibristriata*.

NAIADITES Dawson, 1860.

Naiadites angulata. See *Carbonicola angulata*.

Naiadites arenacea. See *Anthracomya arenacea*.

Naiadites carbonarius Dawson.

*1860. *Naiadites carbonarius*. Dawson, Supp. Acad. Geol.
Coal Measures: Nova Scotia.

1863. *Anthracopteria carbonaria*. Salter, Quart. Jour. Geol. Soc. Lond., vol. 19,
p. 79, fig. 3.
Coal Measures: Nova Scotia.

1868. *Naiadites (Anthracopteria) carbonaria*. Dawson, Acad. Geol., p. 204, fig. 42.
Coal Measures: Nova Scotia.

1883. *Naiadites carbonaria*. White, 3d Ann. Rep. U. S. Geol. Surv., p. 425, pl. 2,
fig. 15.

1894. *Naiadites carbonarius*. Hind, Quart. Jour. Geol. Soc. Lond., vol. 50, p. 441,
pl. 20, figs. 2, 3, 11c.

1894. *Naiadites carbonarius*. Dawson, Rev. Biv. Moll. Coal-Form. Nova Scotia,
p. 6, figs. 1-3.
Coal Measures: South Joggins, Nova Scotia; Pictou and Mabon, Cape Breton.

Naiadites elongata. See *Anthracomya elongata*.

Naiadites fragilis Meek and Worthen.

*1866. *Anthracoptera ? fragilis*. Meek and Worthen, Proc. Chicago Acad. Sci.,
vol. 1, p. 18.

Keokuk Group: Near Warsaw, Illinois.

1868. *Anthracoptera ? fragilis*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 534,
pl. 19, fig. 4.

Keokuk Group: Near Warsaw, Illinois.

Naiadites lævis. See *Anthracomya lævis*

Naiadites longus Dawson.

1894. *Naiadites longus*. Dawson, Rev. Biv. Moll. Coal-Form. Nova Scotia,
p. 8, fig. 4.

Coal Measures: South Joggins, Nova Scotia; Cape Breton.

Naiadites mytiloides Dawson.

1894. *Naiadites mytiloides*. Dawson, Rev. Biv. Moll. Coal-Form. Nova Scotia, p. 9, fig. 5.

Coal Measures: Chimney Corner, Cape Breton.

Naiadites obtusa. See *Anthracomya obtenta*.

Naiadites ovalis. See *Anthracomya ovalis*.

Naiadites polita White.

1880. *Anthracoptera polita*. White, Cont. to Inv. Pal., No. 8, p. 166, pl. 42, figs. 5a, b.

Coal Measures: Major's Mill, Vermilion County, Illinois.

(NATICA Adanson, 1757.)

Natica altonensis. See *Naticopsis altonensis*.

Natica carlyana. See *Strophostylus carleyana*.

Natica chesterensis. See *Naticopsis chesterensis*.

Natica littonana. See *Sphaerodoma littonana*.

Natica magister. See *Naticopsis ventricosa*.

Natica shumardi. See *Naticopsis shumardi*.

Natica ventrica. See *Naticopsis ventricosa*.

NATICOPSIS McCoy, 1844.

Naticopsis altonensis McChesney.

1865. *Natica Altonensis*. McChesney, Ill. New Spec. Foss., p. 0, pl. 2, figs. 14a, b.

Coal Measures: Alton, Illinois.

1868. *Naticopsis altonensis*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 50, pl. 2, figs. 14a-c.

Coal Measures: Alton, Illinois.

1873. *Naticopsis Altonensis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 595, pl. 28, fig. 11.

Coal Measures: Maconpin County, Illinois.

1881. *Naticopsis altonensis*. White, U. S. Geol. Surv. W. 100 Merid., vol. 3, Supp. Appendix, p. xxxv, pl. 3, fig. 6a.

Carboniferous: Near Taos, New Mexico.

Naticopsis altonensis var. giganteus Meek and Worthen.

1873. *Naticopsis Altonensis?* var. *giganteus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 28, figs. 12a, b.

Coal Measures.

Naticopsis carleyana. See *Strophostylus carleyana*.

Naticopsis chesterensis Swallow.

1863. *Natica Chesterensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 100.

Kaskaskia L. S.: Chester, Illinois; Ste. Genevieve, Missouri.

Naticopsis depressa Winchell.

1863. *Naticopsis depressus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 22.

Yellow S. S.: Burlington, Iowa.

1889. *Naticopsis depressa*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 293.

Kinderhook Group: Burlington, Iowa.

Naticopsis dispassa Dawson.

1868. *Naticopsis dispassa*. Dawson, Acad. Geol., p. 309, fig. 120.

Carboniferous L. S.: Pugwash and Windsor, Nova Scotia.

Naticopsis hollidayi. See *Trachydoma nodosa* var. *hollidayi*.

***Naticopsis howi* Hartt.**

1868. *Naticopsis Howi*. Hartt, Dawson's Acad. Geol., p. 309, fig. 119.

Carboniferous L. S.: Windsor, Gay's Head, De Bert River, etc., Nova Scotia.

Naticopsis littonana var. *genevievensis*. See *Sphaerodoma littonana* var. *genevievensis*.

Naticopsis madisonensis. See *Strophostylus madisonensis*.

Naticopsis monilifera. See *Pleurotomaria monilifera*.

Naticopsis nana. See *Strophostylus nana*.

Naticopsis nodosa. See *Trachydomia nodosum*.

Naticopsis nodosa var. *hollidayi*. See *Trachydomia nodosum* var. *hollidayi*.

***Naticopsis ortonii* Whitfield.**

1882. *Naticopsis Ortoni*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 230.

Coal Measures: Falls Township, Hocking County, Ohio.

1891. *Naticopsis Ortoni*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 605, pl. 16, figs. 12, 13.

Coal Measures: Hocking County, Ohio.

1895. *Naticopsis Ortoni*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 498, pl. 12, figs. 12, 13.

Coal Measures: Falls Township, Hocking County, Ohio.

***Naticopsis pricii* Shumard.**

1858. *Naticopsis (Nerita) Pricei*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 202.

Upper Coal Measures: Boone County, Missouri; Cottonwood Creek and Verdigris River, Kansas.

Naticopsis remex. See *Strophostylus remex*.

***Naticopsis shumardi* McChesney.**

1860. *Natica shumardi*. McChesney, Desc. New Pal. Foss., p. 62.

Coal Measures: La Salle, Illinois.

1865. *Natica shumardi*. McChesney, Ill. New Spec. Foss., pl. 2, figs. 15a-b.

1868. *Naticopsis Shumardi*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 49, pl. 2, figs. 15a, b.

Coal Measures: La Salle, Illinois.

1891. *Naticopsis shumardi*. White, Bull. U. S. Geol. Surv. No. 77, p. 24, pl. 3, fig. 11.

Permian: Goodwin Creek, Baylor County, Texas.

Naticopsis subovatus. See *Strophostylus subovatus*.

***Naticopsis torta* Meek.**

1871. *Platyceras tortum*. Meek, Proc. Acad. Nat. Sci. Phil., p. 171.

Coal Measures: Greentown, Summit County, Ohio.

1875. *Platyceras tortum*. Meek, Pal. Ohio, vol. 2, p. 345, pl. 20, figs. 1a-c.

Coal Measures: Greentown, Stark County, Ohio.

1890. *Naticopsis torta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 180.

***Naticopsis ventricosa* Norwood and Pratten.**

1855. *Natica ventrica*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 76, pl. 9, figs. 10a, b.

Coal Measures: 1 mile south of New Harmony, Indiana.

1858. *Natica Magister*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 261.

Archimedes L. S.: Near Makanda, Illinois.

***Naticopsis ventricosa* Norwood and Pratten—Continued.**

1873. *Naticopsis ventricosus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 592, pl. 28, fig. 13.
 Coal Measures: 1 mile south of New Harmony, Indiana.
1889. *Naticopsis ventricosa*. Keyes, Am. Geol., vol. 4, p. 195, fig. 3.
1894. *Naticopsis ventricosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 199.
 Upper Coal Measures: Kansas City and Clinton, Missouri.

Naticopsis wheeleri*. See *Trachydomia wheeleri*.**Naticopsis*? *ziczac* Whitfield.**

1882. *Naticopsis ziczac*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 223.
 Maxville L. S.: Newtownville, Ohio.
1891. *Naticopsis ziczac*. Whitfield Ann. N. Y. Acad. Sci., vol. 5, p. 590, pl. 14, figs. 15, 16.
 Maxville L. S.: Newtonville, Ohio.
1895. *Naticopsis ziczac*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 477, pl. 10, figs. 15, 16.
 Maxville L. S.: Newtonville, Ohio.

***Naticopsis* (species undetermined).**

1888. *Naticopsis*? sp. n. Herrick, Bull. Den. Univ., vol. 3, p. 87, pl. 12, fig. 37.
 Waverley Group: Licking County, Ohio.
1897. *Naticopsis* sp. Smith, Proc. Am. Phil. Soc., vol. 35, p. 41.
 Upper Coal Measures: Scott County, Arkansas.

NAUTILUS Breynius, 1732.***Nautilus altidorsalis*. See *Trematoceras altidorsalis*.*****Nautilus avonensis*. See *Endolobus avonensis*.*****Nautilus biserialis*. See *Tainoceras occidentalis*.*****Nautilus bisulcatus* Herrick.**

1888. *Nautilus* (?) *bisulcatus*. Herrick, Bull. Den. Univ., vol. 3, p. 20.
 Maxville L. S.: Fultonham, Ohio.
1888. *Nautilus bisulcatus*. Herrick, Bull. Den. Univ., vol. 4, pl. 11, fig. 16.
 Chester L. S.: Ohio.

***Nautilus blairi* Miller.**

1892. *Solenochilus blairi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 75, pl. 12, fig. 2.
 Chouteau L. S.: Pin Hook Bridge, 6 miles from Sedalia, Missouri.
1894. *Solenochilus blairi*. Miller, 18th Rep. Geol. Surv. Ind., p. 329, pl. 12, fig. 2.
 Chouteau L. S.: Pin Hook Bridge, 6 miles from Sedalia, Missouri.

***Nautilus burlingtonensis* Owen.**

1852. *Gyroceras burlingtonensis*. Owen, Geol. Surv. Wis., Iowa, and Minn., p. 581, tab. 5, fig. 10.
 Lower Carboniferous (Oolite bed): Burlington, Iowa.
1894. *Nautilus*? *burlingtonensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 221.
 Chouteau L. S.: Sedalia, Missouri.

Nautilus canaliculatus*. See *Solenoceras canaliculatum*.**Nautilus capax*. See *Asymptoceras capax*.*****Nautilus chesterensis*. See *Leuroceras chesterensis*.*****Nautilus clarkanus* Hall.**

1856. *Nautilus Clarkanus*. Hall, Trans. Albany Inst., vol. 4, p. 32.
 St. Louis L. S.: Spergen Hill, Indiana.

***Nautilus clarkanus* Hall—Continued.**

1882. *Nautilus Clarkanus*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 92, pl. 8, fig. 1.

St. Louis Group: Spergen Hill, Indiana.

1883. *Nautilus clarkanus*. Hall, 12th Rep. Geol. Surv. Ind., p. 373, pl. 31, fig. 1.
St. Louis Group: Spergen Hill and Lanesville, Indiana.

Nautilus collectus. See *Solenocheilus collectum*.

Nautilus coxanus. See *Temnocheilus coxanum*.

***Nautilus danvillensis* White.**

1878. *Nautilus Danvillensis*. White, Proc. Acad. Nat. Sci. Phil., p. 36.
Coal Measures: Danville, Illinois.

1880. *Nautilus danvillensis*. White, Cont. to Inv. Pal., No. 8, p. 170, pl. 42, fig. 7a.

Coal Measures: Danville, Illinois.

***Nautilus decoratus* Cox.**

1857. *Nautilus decoratus*. Cox, Geol. Rep. Ky., vol. 3, p. 572, pl. 9, figs 4-4b.
Coal Measures: Mines of Kentucky Coal Company, Union County, Kentucky.

1868. *Nautilus decoratus*. Rogers, Geol. Rep. Penn., vol. 2, p. 833, fig. 692.

Nautilus digonus. See *Triboloceras digonum*.

Nautilus disciformis. See *Aphelæceras disciformis*.

Nautilus discoidalis. See *Trematoceras discoidalis*.

Nautilus divisus. See *Ephippioceras divisus*.

***Nautilus eccentricus* Meek and Hayden.**

1858. *Nautilus eccentricus*. Meek and Hayden, Trans. Albany Inst., vol. 4, p. 83.
Permian: Smoky Hill Fork.

1864. *Nautilus eccentricus*. Meek and Hayden, Pal. Up. Mo., p. 65, pl. 2, figs. 14a, b.

Permian: Near mouth of Smoky Hill Fork of Kansas River, Kansas.

***Nautilus faberi* Miller.**

1889. *Nautilus faberi*. Miller, N. A. Geol. and Pal., p. 443, fig. 746.
Coal Measures: Elk Horn Creek, Kentucky.

Nautilus ferratus. See *Ephippioceras ferratus*.

Nautilus forbesianus. See *Temnocheilus forbesianus*.

***Nautilus gilpini* Swallow.**

1860. *Nautilus Gilpini*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 658.
Coal Measures: Wayne City, Missouri.

Nautilus globatus. See *Coloceras globatus*.

Nautilus highlandensis. See *Domatoceras highlandensis*.

***Nautilus illinoiensis* McChesney.**

1860. *Nautilus illinoiensis*. McChesney, Desc. New Pal. Foss., p. 64.
Upper Coal Measures: Lasalle, Illinois.

***Nautilus indianensis* Miller.**

1892. *Streptodiscus indianensis*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 71, pl. 11, fig. 1.

Keokuk L. S.: West Point, Indiana.

1894. *Streptodiscus indianensis*. Miller, 18th Rep. Geol. Surv. Ind., p. 325, pl. 11, fig. 1.

Keokuk L. S.: West Point, Indiana.

***Nautilus ingentior* Winchell.**

1862. *Nautilus ingentior*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 361.
Marshall S. S.: Marshall, Michigan.

Nautilus lasallensis*. See *Domatoceras lasallensis*.**Nautilus latus*. See *Temnocheilus latus*.*****Nautilus leidyi*. See *Solenocheilus leidyi*.*****Nautilus meekianus*. See *Trematoceras meekianus*.*****Nautilus missouriensis*. See *Endolobus missouriensis*.*****Nautilus montgomeryensis* Worthen.**

1884. *Nautilus montgomeryensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 4.
Upper Coal Measures: Montgomery County, Illinois.
1890. *Nautilus montgomeryensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 148, pl. 26, fig. 2; pl. 27, fig. 1.
Upper Coal Measures: Montgomery County, Illinois.

Nautilus niotensis*. See *Edaphoceras niotensis*.**Nautilus nodocarinatus*. See *Tainoceras occidentalis*.*****Nautilus nodosodorsatus* Shumard.**

1858. *Nautilus nodoso-dorsatus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 198.
Upper Coal Measures: Valley of Verdigris and Kansas rivers, near Pottawattamie Reservation, Kansas.

Nautilus occidentalis*. See *Tainoceras occidentalis*.**Nautilus ortonii* Whitfield.**

1882. *Nautilus Ortoni*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 231.
Coal Measures: Springfield, Ohio.
1891. *Nautilus Ortoni*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 601, pl. 16, fig. 20.
Coal Measures: Springfield, Ohio.
1895. *Nautilus Ortoni*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 486, pl. 12, fig. 20.
Coal Measures: Springfield, Ohio.

***Nautilus parallelus* Beecher.**

1888. *Nautilus parallelus*. Beecher, Pal. N. Y., vol. 5, pt. 2, Supp., p. 38, pl. 126, figs. 3-5.
? Coal Measures: ? Ohio.

***Nautilus pauper* Whitfield.**

1882. *Nautilus pauper*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 226.
Maxville L. S.: Near Rushville, Ohio.
1891. *Nautilus pauper*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 595, pl. 14, fig. 23.
Maxville L. S.: Near Rushville, Ohio.
1895. *Nautilus pauper*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 481, pl. 10, fig. 23.
Maxville L. S.: Near Rushville, Ohio.

Nautilus peramplus*. See *Endolobus spectabilis*.**Nautilus permianus* Swallow.**

1858. *Nautilus Permianus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 196.
Permian: Near Smoky Hill Fork, Kansas.

Nautilus planidorsalis*. See *Trematoceras planidorsalis*.**Nautilus planorbiformis* Meek and Worthen.**

1860. *Nautilus (Discus) planorbiformis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 469.
Coal Measures: Alpine, Iowa.

Nautilus planorbiformis Meek and Worthen—Continued.

1866. *Nautilus planorbiformis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 386, pl. 29, figs. 4a-c.
Coal Measures: Alpine, Iowa.

Nautilus planovolvis Shumard.

1858. *Nautilus planovolvis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 198.
Upper Coal Measures: Near Belleville, Nebraska.
1873. *Nautilus planovolvis*? Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 30, figs. 3a, b.
Coal Measures.

Nautilus ponderosus. See *Titanoceras ponderosum*.

Nautilus quadrangulus. See *Tainoceras occidentalis*.

Nautilus rockfordensis. See *Oncodoceras rockfordensis*.

Nautilus sangamonensis. See *Metacoceras sangamonensis*.

Nautilus seebachanus. See *Pteronutilus seebachanus*.

Nautilus spectabilis. See *Endolobus spectabilis*.

Nautilus springeri. See *Asymptoceras springeri*.

Nautilus striatulus. See *Trematodiscus striatulus*.

Nautilus strigatus. See *Trematoceras strigatus*.

Nautilus subglobosus Meek and Worthen.

1860. *Nautilus subglobosus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 469.
Chester L. S.: Chester, Illinois.

Nautilus subquadrangularis Whitfield.

1882. *Nautilus (Gyroceras?) subquadrangularis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 232.
Coal Measures: Canfield, Ohio.
1891. *Nautilus (Gyroceras?) subquadrangularis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 602, pl. 15, fig. 16.
Coal Measures: Canfield, Ohio.
1895. *Nautilus (Gyroceras?) subquadrangularis*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 487, pl. 11, fig. 16.
Coal Measures: Canfield, Ohio.

Nautilus subsulcatus Winchell.

1862. *Nautilus subsulcatus* (?). Winchell, Am. Jour. Sci. (2), vol. 33, p. 361.
Marshall S. S.: Marshall, Michigan.

Nautilus sulcatus. See *Trematoceras sulcatus*.

Nautilus toddi Miller.

1892. *Nautilus toddi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 72, pl. 11, figs. 2-4.
Upper Coal Measures: Wyandotte County, Kansas.
1894. *Nautilus toddi*. Miller, 18th Rep. Geol. Surv. Ind., p. 326, pl. 11, figs. 2-4.
Upper Coal Measures: Wyandotte County, Kansas.

Nautilus trigonus. See *Stroboceras trigonus*.

Nautilus trisulcatus. See *Stroboceras trisulcatus*.

Nautilus tuberculatus Owen.

1852. *Discites tuberculatus*. Owen, Geol. Rep. Wis., Iowa, and Minn., p. 581, tab. 5, fig. 14.
Carboniferous L. S.: Iowa Point, Missouri River.

***Nautilus ingentior* Winchell.**

1862. *Nautilus ingentior*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 361.
Marshall S. S.: Marshall, Michigan.

Nautilus lasallensis*. See *Domatoceras lasallensis*.**Nautilus latus*. See *Temnocheilus latus*.*****Nautilus leidyi*. See *Solenocheilus leidyi*.*****Nautilus meekianus*. See *Trematoceras meekianus*.*****Nautilus missouriensis*. See *Endolobus missouriensis*.*****Nautilus montgomeryensis* Worthen.**

1884. *Nautilus montgomeryensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 4.
Upper Coal Measures: Montgomery County, Illinois.
1890. *Nautilus montgomeryensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 148, pl. 26, fig. 2; pl. 27, fig. 1.
Upper Coal Measures: Montgomery County, Illinois.

Nautilus niotensis*. See *Edaphoceras niotensis*.**Nautilus nodocarinatus*. See *Tainoceras occidentalis*.*****Nautilus nodosodorsatus* Shumard.**

1858. *Nautilus nodoso-dorsatus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 198.
Upper Coal Measures: Valley of Verdigris and Kansas rivers, near Pottawattamie Reservation, Kansas.

Nautilus occidentalis*. See *Tainoceras occidentalis*.**Nautilus ortonii* Whitfield.**

1882. *Nautilus Ortoni*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 231.
Coal Measures: Springfield, Ohio.
1891. *Nautilus Ortoni*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 601, pl. 16, fig. 20.
Coal Measures: Springfield, Ohio.
1895. *Nautilus Ortoni*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 486, pl. 12, fig. 20.
Coal Measures: Springfield, Ohio.

***Nautilus parallelus* Beecher.**

1888. *Nautilus parallelus*. Beecher, Pal. N. Y., vol. 5, pt. 2, Supp., p. 38, pl. 126, figs. 3-5.
? Coal Measures: ? Ohio.

***Nautilus pauper* Whitfield.**

1882. *Nautilus pauper*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 226.
Maxville L. S.: Near Rushville, Ohio.
1891. *Nautilus pauper*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 595, pl. 14, fig. 23.
Maxville L. S.: Near Rushville, Ohio.
1895. *Nautilus pauper*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 481, pl. 10, fig. 23.
Maxville L. S.: Near Rushville, Ohio.

Nautilus peramplus*. See *Endolobus spectabilis*.**Nautilus permianus* Swallow.**

1858. *Nautilus Permianus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 196.
Permian: Near Smoky Hill Fork, Kansas.

Nautilus planidorsalis*. See *Trematoceras planidorsalis*.**Nautilus planorbiformis* Meek and Worthen.**

1860. *Nautilus (Discus) planorbiformis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 469.
Coal Measures: Alpine, Iowa.

Nautilus planorbiformis Meek and Worthen—Continued.

1866. *Nautilus planorbiformis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. pl. 29, figs. 4a-c.

Coal Measures: Alpine, Iowa.

Nautilus planovolvis Shumard.

1858. *Nautilus planovolvis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 196
Upper Coal Measures: Near Belleville, Nebraska.

1873. *Nautilus planovolvis*? Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. figs. 3a, b.

Coal Measures.

Nautilus ponderosus. See *Titanoceras ponderosum*.

Nautilus quadrangulus. See *Tainoceras occidentalis*.

Nautilus rockfordensis. See *Oncodoceras rockfordensis*.

Nautilus sangamonensis. See *Metacoceras sangamonensis*.

Nautilus seebachanus. See *Pteronutilus seebachanus*.

Nautilus spectabilis. See *Endolobus spectabilis*.

Nautilus springeri. See *Asymptoceras springeri*.

Nautilus striatulus. See *Trematodiscus striatulus*.

Nautilus strigatus. See *Trematoceras strigatus*.

Nautilus subglobosus Meek and Worthen.

1860. *Nautilus subglobosus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. Chester L. S.: Chester, Illinois.

Nautilus subquadrangularis Whitfield.

1882. *Nautilus (Gyroceras?) subquadrangularis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 232.

Coal Measures: Canfield, Ohio.

1891. *Nautilus (Gyroceras?) subquadrangularis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 602, pl. 15, fig. 16.

Coal Measures: Canfield, Ohio.

1895. *Nautilus (Gyroceras?) subquadrangularis*. Whitfield, Geol. Surv. Ohio, 7, p. 487, pl. 11, fig. 16.

Coal Measures: Canfield, Ohio.

Nautilus subsulcatus Winchell.

1862. *Nautilus subsulcatus* (?). Winchell, Am. Jour. Sci. (2), vol. 33, p. 361.
Marshall S. S.: Marshall, Michigan.

Nautilus sulcatus. See *Trematoceras sulcatus*.

Nautilus toddi Miller.

1892. *Nautilus toddi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 72, pl. figs. 2-4.

Upper Coal Measures: Wyandotte County, Kansas.

1894. *Nautilus toddi*. Miller, 18th Rep. Geol. Surv. Ind., p. 326, pl. 11, figs. 2-4.

Upper Coal Measures: Wyandotte County, Kansas.

Nautilus trigonus. See *Stroboceras trigonus*.

Nautilus trisulcatus. See *Stroboceras trisulcatus*.

Nautilus tuberculatus Owen.

1852. *Discites tuberculatus*. Owen, Geol. Rep. Wis., Iowa, and Minn., p. tab. 5, fig. 14.

Carboniferous L. S.: Iowa Point, Missouri River.

Nautilus winslowi. See *Temnocheilus winslowi*.

Nautilus (undetermined species).

1859. *Nautilus* sp. (?). Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 399.
Dark Permian L. S.: Guadalupe Mountains.
1861. *Nautilus* sp. Newberry, Ives' Colo. Expl. Exped., p. 118.
Upper Carboniferous: Agua Azul, near the base of Mount Taylor.
1868. *Nautilus* (undescribed species). McChesney, Trans. Chicago Acad. Sci.,
vol. 1, pl. 3, fig. 6.
Coal Measures: Grayville, Illinois.
1873. *Nautilus* (sp. undet.). Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 19,
figs. 2a, b.
Keokuk Group.
1886. *Nautilus* sp.? Heilprin, 2d Geol. Surv. Penn., Ann. Rep. for 1885, p. 457.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Nautilus* sp. (?). Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2,
pt. 2, p. 277.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Nautilus* sp. Herrick, Bull. Den. Univ., vol. 2, p. 17, pl. 2, fig. 17.
Coal Measures: Flint Ridge, Ohio.
1888. *Nautilus* ? sp. Herrick, Bull. Den. Univ., vol. 3, pl. 2, fig. 26.
Waverly Group: Licking County, Ohio.
1888. *Nautilus* ? sp. Herrick, Bull. Den. Univ., vol. 3, pl. 6, fig. 14.
Waverly Group: Licking County, Ohio.
1888. *Nautilus*. Herrick, Bull. Den. Univ., vol. 4, pl. 7, fig. 3.
Waverly Group: Moot's Run, Licking County, Ohio.
1888. *Nautilus* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 7, fig. 8.
Waverly Group: Newark, Ohio.
1891. *Nautilus* — ? White, Bull. U. S. Geol. Surv. No. 77, p. 23, pl. 3, figs. 6-8.
Permian: Military Crossing of the Big Wichita, Baylor County, Texas.
1891. *Nautilus* — ? White, Bull. U. S. Geol. Surv. No. 77, p. 24, pl. 2, figs. 4-6.
Permian: Military Crossing, Baylor County, Texas.
1891. *Nautilus* — ? White, Bull. U. S. Geol. Surv. No. 77, p. 24, pl. 2, figs. 7-10.
Permian: Goodwin Creek, Baylor County, Texas.
1891. *Nautilus* (*Endolobus*) — ? White, Bull. U. S. Geol. Surv. No. 77, p. 24,
pl. 2, fig. 13.
Permian: Military Crossing, Baylor County, Texas.
1895. *Nautilus* sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 18, fig. 3.
Cuyahoga Shale: Moot's Run, Licking County, Ohio.
1895. *Nautilus* sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 18, fig. 8.
Burlington: Newark, Ohio.
1897. *Nautilus* sp. Smith, Proc. Am. Phil. Soc., vol. 35, p. 43.
Upper Coal Measures: Crawford County, Arkansas.

NECYMYLAORIS Scudder, 1880.

***Necymylacris heros* Scudder.**

1879. *Necymylacris heros*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 54,
pl. 5, fig. 9.
Lower Coal Measures: Cannelton, Pennsylvania.
1890. *Necymylacris heros*. Scudder, Foss. Insc. N. A., vol. 1, p. 74, pl. 5, fig. 9.
Lower Coal Measures: Cannelton, Pennsylvania.
1895. *Necymylacris heros*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 55.
Lower Coal Measures: Boston Mine, near Pittston, Pennsylvania.

Necmylacrisc lacoana Scudder.

1879. *Necmylacrisc lacoanum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 53, pl. 5, fig. 12.
 Lower Coal Measures: Pittston, Pennsylvania.
1890. *Necmylacrisc lacoana*. Scudder, Foss. Insc. N. A., vol. 1, p. 73, pl. 5, fig. 12.
 Lower Coal Measures: Pittston, Pennsylvania.
1895. *Necmylacrisc lacoana*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 55.
 Lower Coal Measures: Boston Mine, near Pittston, Pennsylvania.

NIPTEROCRINUS Wachsmuth, 1868.**Nipterocrinus arboreus** Worthen.

1873. *Nipterocrinus arboreus*. Worthen, Geol. Surv. Ill., vol. 5, p. 436, pl. 4, fig. 8.
 Burlington L. S.: Burlington, Iowa.

Nipterocrinus wachsmuthi Meek and Worthen.

1868. *Nipterocrinus Wachsmuthi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 342.
 Upper Burlington Group: Burlington, Iowa.
1873. *Nipterocrinus Wachsmuthi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 435, pl. 2, fig. 4.
 Burlington L. S.: Burlington, Iowa.

NODOSINELLA Brady, 1876.**Nodosinella priscilla** Dawson.

1868. *Dentalina priscilla*. Dawson, Acad. Geol., p. 285, fig. 82.
 Carboniferous L. S.: Windsor, Nova Scotia.
1876. *Nodosinella priscilla*. Brady, Monog. Carb. and Perm. Form., p. 105, pl. 7, figs. 8, 9.
 Carboniferous L. S.: Windsor, Nova Scotia.

NUCULA Lamark, 1801.**Nucula anodontoides** Meek.

1870. *Nucula anodontoides*. Meek, Rep. Regents Univ. W. Va.
 Coal Measures: Monongahela County, West Virginia.

Nucula arata. See *Nuculana arata*.**Nucula beyrichi** von Schauroth.

1866. *Nucula Beyrichi*. Geinitz, Carb. und Dyas in Nebr., p. 21, tab. 1, figs. 36, 37.
 Nebraska City, Nebraska.
1872. *Nucula Beyrichi*? Meek, U. S. Geol. Surv. Nebr., p. 203, pl. 10, fig. 18.
 Upper Coal Measures: Nebraska City, Nebraska.
 Coal Measures: Illinois.
1873. *Nucula Beyrichi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 589, pl. 26, fig. 9.
 Coal Measures: Illinois.
1891. *Nucula beyrichi*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 249.
 Lower Coal Measures: Des Moines, Iowa.

Nucula cylindricus. See *Cardiomorpha missouriensis*.**Nucula hians** Hall.

1860. *Nucula hians*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 110.
 Goniatite L. S.: Rockford, Indiana.

***Nucula houghtoni* Stevens.**

1858. *Nucula Houghtoni*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 262.
Carboniferous: Battle Creek, Michigan.
1862. *Nucula iowensis*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 298.
Chemung Group: Burlington, Iowa.
1862. *Nucula iowensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 418.
Marshal Group: Battle Creek and Wyoming, Michigan.
1884. *Nucula Iowensis*. Hall, Rep. N. Y. State Geol. for 1881, pl. 7, figs. 8, 9.
Waverly Group: Granville, Ohio.
1885. *Nucula Houghtoni*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 323, pl. 45, figs. 29-31.
Waverly S. S.: Newark and Richfield, Ohio; Battle Creek and near Hillsdale, Michigan.
1888. *Ctenodonta (Nucula) iowensis*. Herrick, Bull. Den. Univ., vol. 3, p. 78, pl. 1, figs. 14-17.
Waverly Group: Licking County, Ohio.
1888. *Ctenodonta (Nucula) houghtoni?* Herrick, Bull. Den. Univ., vol. 3, p. 78, pl. 5, fig. 17.
Waverly Group: Licking County, Ohio.
1888. *Nucula (Ctenodonta) houghtoni*. Herrick, Bull. Den. Univ., vol. 4, p. 44, pl. 4, fig. 3; pl. 10, fig. 4.
Waverly Group: Cuyahoga Falls, Ohio.
1889. *Ctenodonta houghtoni?* Herrick, Am. Geol., vol. 3, pl. 2, fig. 3.
1895. *Ctenodonta houghtoni*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 3.
Cuyahoga Shale: Ohio.
1895. *Ctenodonta houghtoni*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 21, fig. 17.
Kinderhook: Ohio.
1895. *Nucula houghtoni* (?). Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 6.
(Cuyahoga Shale): Cuyahoga Falls, Ohio.

Nucula hubbardi. See *Palæoneilo sulcatina*.

Nucula hubbardi var. *prolata*. See *Palæoneilo sulcatina*.

***Nucula illinoiensis* Worthen.**

1884. *Nucula illinoiensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 15.
Oolitic beds of St. Louis L. S.: Monroe County, Illinois.
1890. *Nucula illinoiensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 128, pl. 19, figs. 4, 4a.
St. Louis L. S. (oolite): Monroe County, Illinois.

***Nucula insularis* Walcott.**

1884. *Nucula insularis*. Walcott, Pal. Eureka Dist., p. 241, pl. 20, fig. 14.
Lower Carboniferous: Eureka District, Nevada.

Nucula iowensis. See *Nucula houghtoni*.

Nucula kazanensis. See *Nuculana bellistriata*.

***Nucula levatiformis* Walcott.**

1884. *Nucula levatiforme*. Pal. Eureka Dist., p. 241, pl. 22, figs. 1, 1a.
Lower Carboniferous: Eureka District, Nevada.

***Nucula microdonta* Winchell.**

1863. *Nucula microdonta*. Winchell, Proc. Acad. Nat. Sci., Phil., p. 16.
Yellow S. S. and base of Burlington L. S.: Burlington, Iowa.

Nucula nasuta. See *Nuculana nasuta*.

***Nucula obsoleta* McChesney.**

1861. *Nucula obsoleta*. McChesney, Desc. New Pal. Foss., p. 89.
Coal Measures: Carnahan's Mine, Mercer County, Illinois.

***Nucula parva* McChesney.**

1860. *Nucula parva*. McChesney, Desc. New Pal. Foss., p. 54.
Coal Measures: Danville, Illinois.
1865. *Nucula parva*. McChesney, Ill., New Spec. Foss., pl. 2, figs. 8a-c.
1868. *Nucula parva*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 39, pl. 2,
figs. 8a-c.
Coal Measures: Danville, Illinois.
1873. *Nucula parva*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 589, pl. 26, fig. 8.
Coal Measures: Danville, Illinois.
1888. *Nucula parva*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 233.
Lower Coal Measures: Des Moines, Iowa.
1894. *Nucula parva*. Keyes, Mo. Geol. Surv., vol. 5, p. 121.
Upper Coal Measures: Kansas City, Missouri.
1897. *Nucula parva*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 35.
Lower Coal Measures: Conway County, Arkansas.
Upper Coal Measures: Crawford County, Arkansas.

***Nucula perumbonata* White.**

1879. *Nucula perumbonata*. White, Bull. U. S. Geol. and Geog. Surv. Terr., vol. 5,
p. 217.
Carboniferous: Wild Band Pockets, northern Arizona, 15 miles south of
Pipe Spring.
1880. *Nucula perumbonata*. White, Cont. to Inv. Pal., No. 6, p. 136, pl. 34, figs. 7a, b.
Upper Carboniferous: Wild Band Pockets, northern Arizona, 15 miles south
from Pipe Spring.

***Nucula rectangula* McChesney.**

1860. *Nucula rectangula*. McChesney, Desc. New Pal. Foss., p. 74.
Hamilton Group: Near Batesville, Arkansas.
1865. *Nucula rectangula*. McChesney, Ill. New Spec. Foss., pl. 7, figs. 5a-c.
1868. *Nucula ? rectangula*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 40,
pl. 7, figs. 5a-c.
Dark Colored Hamilton Shales: Batesville, Arkansas.

***Nucula sectoralis* Winchell.**

1862. *Nucula sectoralis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 418.
Marshall Group: Battle Creek and Pointe Aux Barques, Michigan.

***Nucula shumardana* Hall.**

1856. *Nucula Shumardana*. Hall, Trans. Albany Inst., vol. 4, p. 16.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana.
1882. *Nucula Shumardana*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 57, pl. 7,
figs. 2-6.
St. Louis Group: Spergen Hill and Bloomington, Indiana.
1883. *Nucula shumardana*. Hall, 12th Rep. Geol. Surv. Ind., p. 343, pl. 30, figs. 2-6.
St. Louis Group: Spergen Hill, Lanesville and Bloomington, Indiana.

***Nucula speciosa* Munster.**

1858. *Nucula speciosa* (?) Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 190.
Permian?: Kansas.

***Nucula stella* Winchell.**

1862. *Nucula Stella*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 419.
Marshall Group: Michigan.
1865. *Ctenodonta stella*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 129.
Marshall Group: Napoleon Cut, Jackson County, Michigan.
1888. *Ctenodonta* (*Nucula*) *stella*. Herrick, Bull. Den. Univ., vol. 3, p. 78, pl. 9,
fig. 14.
Waverly Group: Licking County, Ohio.

Nucula subscitula. * See *Yoldia subscitula*.

***Nucula ventricosa* Hall.**

- 1858. *Nucula ventricosa*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 716, pl. 24, figs. 4, 5a, b.
Coal Measures.
- 1872. *Nucula ventricosa*. Meek, U. S. Geol. Surv. Nebr., p. 204, pl. 10, figs. 17a-c.
Upper Coal Measures: Nebraska City and Rock Bluff, Nebraska.
Lower Coal Measures: West Virginia.
Coal Measures: Illinois.
- 1882. *Nucula ventricosa*. White, 11th Rep. Geol. Surv. Ind., p. 371, pl. 42, figs. 9, 10.
Coal Measures: Sullivan County, Indiana.
- 1884. *Nucula ventricosa*. White, 13th Rep. Geol. Surv. Ind., p. 146, pl. 27, figs. 9, 10.
Coal Measures: Sullivan County, Indiana.
- 1888. *Nucula ventricosa*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 233.
Lower Coal Measures: Des Moines, Iowa.
- 1894. *Nucula ventricosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 121, pl. 45, figs. 3a, b.
Lower Coal Measures: Clinton, Missouri.
Upper Coal Measures: Kansas City and Gentry, Missouri.
- 1897. *Nucula ventricosa*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 35.
Lower Coal Measures: Conway County, Arkansas.

***Nucula* (species undetermined).**

- 1858. *Nucula*, species not determined. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 190.
Upper Permian: Kansas.
- 1868. *Nucula* ? Rogers, Geol. Rep. Penn., vol. 2, p. 833, fig. 690.
- 1888. *Nucula* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 3, figs. 15, 16.
Waverly Group: Licking County, Ohio.
- 1888. *Nucula* sp? Herrick, Bull. Den. Univ., vol. 3, pl. 4, fig. 7.
Waverly Group: Licking County, Ohio.
- 1888. *Ctenodonta* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 8, fig. 16.
Waverly Group: Licking County, Ohio.
- 1888. *Nucula* ? Herrick, Bull. Den. Univ., vol. 3, pl. 9, fig. 16.
Waverly Group: Licking County, Ohio.
- 1891. *Nucula* sp. Herrick, Bull. Geol. Soc. Am., vol. 2, pl. 1, fig. 5.
Cuyahoga Shale: Ohio.

NUCULANA Link, 1807.

***Nuculana arata* Hall.**

- 1852. *Nucula arata*. Hall, Stansb. Exped. Gt. Salt Lake, p. 413, pl. 2, figs. 5a, b.
Carboniferous: Missouri River, below Weston.

***Nuculana bellistriata* Stevens.**

- 1858. *Leda bellistriata*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 261.
Coal Measures: Danville, Illinois; Summit, Ohio.
- 1858. *Nucula (Leda) Kazanensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 190. (Not *N. kazanensis* Verneuil, 1845.)
Upper and Lower Permian: Valley of Cottonwood and near Smoky Hill Fork, Kansas.
- 1858. *Leda bellistriata*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 717, pl. 29, figs. 6a-d.
Lower Coal Measures: Illinois.
- 1862. *Leda bellistriata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 419.
Marshall Group: Moscow, Michigan.
- 1865. *Leda bellistriata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 128.
Marshall Group: Hillsdale, Michigan.

Nuculana bellistriata Stevens—Continued.

1869. *Leda bellistriata?* Winchell, Safford's Geol. of Tenn., p. 444.
Shales just above Black Shale: Hickman and Maury counties, Tennessee.
1870. *Leda bellistriata?* Winchell, Proc. Am. Phil. Soc., vol. 11, p. 256.
Waverly Group: Tennessee.
1884. *Nuculana bellistriata*. White, 13th Rep. Geol. Surv. Ind., p. 146, pl. 31, figs. 8, 9.
Coal Measures: Vermilion, Sullivan, Vanderburg, and Warrick counties, Indiana.
1887. *Nuculana bellistriata*. Herrick, Bull. Den. Univ., vol. 2, p. 40, pl. 4, fig. 26.
Coal Measures: Flint Ridge, Ohio.
1888. *Nuculana bellistriata*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 232.
Lower Coal Measures: Des Moines, Iowa.
1894. *Nuculana bellistriata*. Keyes, Mo. Geol. Surv., vol. 5, p. 122, pl. 45, figs. 4a, b.
Upper Coal Measures: Gentry and Kansas City, Missouri.
1897. *Nuculana* aff. *bellistriata*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 35
Upper Coal Measures: Scott County, Arkansas.

Nuculana bellistriata var. attenuata Meek.

1866. *Nucula Kazanensis*. Geinitz, Carb. und Dyas in Nebr., p. 20, tab. 1, figs. 33, 34.
(Not *N. kasanensis* de Vern, 1845.)
Nebraska City, Nebraska.
1872. *Nuculana bellistriata* var. *attenuata*. Meek, U. S. Geol. Surv. Nebr., p. 206, pl. 10, figs. 11a, b.
Upper Coal Measures: Nebraska City, Nebraska; Leavenworth, Kansas; Iowa; Illinois.
Lower Coal Measures: West Virginia.

Nuculana curta Meek and Worthen.

1861. *Leda curta*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 144.
St. Louis L. S.: Waterloo, Monroe County, Illinois.
1866. *Nuculana?* *curta*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 283, pl. 20, figs. 6a, b.
St. Louis Group: Waterloo, Monroe County, Illinois.

— Nuculana dens-mamillata Stevens.

1858. *Leda dens-mamillata*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 262.
Carboniferous: Battle Creek, Michigan.

Nuculana diversa Hall.

1883. *Leda (Nuculana) diversa*. Hall, Pal. N. Y., vol. 5, pt. 1, Plates and Explanations, pl. 47, figs. 31-37.
1885. *Leda diversa*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 329, pl. 47, figs. 31-37.
Hamilton Group: Schoharie County and Onondaga County, New York.
1888. *Nuculana diversa?* Herrick, Bull. Den. Univ., vol. 4, pl. 4, fig. 22.
Waverly Group: Peninsula, Ohio.
1888. *Nuculana diversa*. Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 13.
Bedford Shale: Central College, Ohio.
1889. *Nuculana diversa?* Herrick, Am. Geol., vol. 3, pl. 2, fig. 22.
1889. *Leda diversa* var. Herrick, Am. Geol., vol. 3, pl. 4, fig. 13.
Bedford Shale: Ohio.
1895. *Nuculana diversa?* Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 22.
Waverly Group: Peninsula, Ohio.
1895. *Nuculana diversa*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 13.
Shale above Berea Grit: Ohio.

Nuculana nasuta Hall.

1856. *Nucula nasuta*. Hall, Trans. Albany Inst., vol. 4, p. 17.
St. Louis L. S.: Spergen Hill, Indiana.

Nuculana nasuta Hall—Continued.

1882. *Nuculana nasuta*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 57, pl. 7, figs. 7-9.
St. Louis Group: Spergen Hill, Indiana.
1883. *Leda nasuta*. Hall, 12th Rep. Geol. Surv. Ind., p. 344, pl. 30, figs. 7-9.
St. Louis Group: Spergen Hill and Lanesville, Indiana.

Nuculana nuculaeformis Stevens.

- 1858. *Leda nuculaeformis*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 262.
Carboniferous: Battle Creek, Michigan.
1888. *Nuculana nuculaeformis*. Herrick, Bull. Den. Univ., vol. 4, p. 45, pl. 4, fig. 23.
Waverly Group: Newark, Ohio.
1889. *Nuculana nuculaeformis?* Herrick, Am. Geol., vol. 3, pl. 2, fig. 23.
1895. *Nuculana nuculaeformis?* Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 23.
Burlington: Newark, Ohio.

Nuculana obesa White.

1879. *Nuculana obesa*. White, Bull. U. S. Geol. and Geog. Surv. Terr., vol. 5, p. 216.
Carboniferous: Wild Band Pockets, northern Arizona, 15 miles south of Pipe Spring.
1880. *Nuculana obesa*. White, Cont. to Inv. Pal., No. 6, p. 136, pl. 34, figs. 2a-c.
Upper Carboniferous: Wild Band Pockets, northern Arizona, 15 miles south from Pipe Spring.

Nuculana pandoriformis Stevens.

- 1858. *Leda pandoriformis*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 262.
Carboniferous: Battle Creek, Michigan.
1884. *Leda Ohioensis*. Hall, Rep. N. Y. State Geol. for 1881, pl. 7, fig. 3.
Waverly S. S.: Waverly, Ohio.
1885. *Leda pandoriformis*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 332, pl. 47, figs. 49, 50.
Waverly S. S.: Newark, Ohio; Battle Creek, Michigan.

Nuculana saccata Winchell.

1863. *Leda saccata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 16.
Yellow S. S.: Burlington, Iowa.
1888. *Nuculana (Leda) saccata?* Herrick, Bull. Den. Univ., vol. 3, p. 80, pl. 9, fig. 12.
Waverly Group: Licking County, Ohio.
1888. *Nuculana saccata?* Herrick, Bull. Den. Univ., vol. 4, pl. 4, fig. 16.
Waverly Group: Ohio.
1889. *Nuculana saccata?* Herrick, Am. Geol., vol. 3, pl. 2, fig. 16.
1895. *Nuculana saccata*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 16.
Waverly Shale, below Conglomerate I: Ohio.

Nuculana similis Herrick.

1888. *Nuculana (Leda) similis*. Herrick, Bull. Den. Univ., vol. 3, p. 79, pl. 4, fig. 13, 15.
Waverly Group: Licking County, Ohio.
1889. *Nuculana similis*. Herrick, Am. Geol., vol. 3, pl. 2, fig. 13.
1895. *Nuculana similis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 13.
Waverly Group, below Conglomerate I: Ohio.

Nuculana spatulata Herrick.

1888. *Nuculana (Leda) spatulata*. Herrick, Bull. Den. Univ., vol. 3, p. 79, pl. 9, fig. 11; pl. 7, fig. 35.
Waverly Group: Licking County, Ohio.

Nuculana vaseyana McCheeney.

1860. *Nuculites vaseyana*. McCheeney, Desc. New Pal. Foss., p. 73.
Hamilton Group: Batesville, Arkansas.

Nuculana vaseyana McChesney—Continued.

1865. *Nuculites vaseyana*. McChesney, Ill. New Spec. Foss., pl. 7, figs. 4a-d.

1868. *Nuculana vaseyana*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 37, pl. 7, figs. 4a-d.

Hamilton Group: Batesville, Arkansas.

Nuculana (species undetermined).

1873. *Nuculana* (sp. undet.). Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 26, fig. 10.

Coal Measures.

1874. *Nuculana* (sp. undet.). Meek, Am. Jour. Sci. (3), vol. 7, p. 489.

1888. *Nuculana* sp. Herrick, Bull. Den. Univ., vol. 4, p. 45, pl. 4, fig. 11.
Waverly Group: Gann, Ohio.

1888. *Nuculana* sp. Herrick, Bull. Den. Univ., vol. 4, p. 45, pl. 4, fig. 12.
Waverly Group: Granville, Ohio.

1889. *Nuculana* sp. Herrick, Am. Geol., vol. 3, pl. 2, figs. 11, 12.

1895. *Nuculana* sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, figs. 11, 12.
Kinderhook: Gann and Granville, Ohio.

NUCULITES Conrad, 1841.**Nuculites concentricus** Conrad.

*1842. *Nuculites concentricus*. Conrad, Jour. Acad. Nat. Sci. Phil. (1), vol. 8, p. 248.
Coal Measures.

Nuculites mactroides Conrad.

1842. *Nuculites mactroides*. Conrad, Jour. Acad. Nat. Sci. Phil. (1), vol. 8, p. 249, pl. 15, fig. 6.

Carboniferous: Hillsdale County, Michigan.

Nuculites sulcatina. See *Palæoneilo sulcatina*.

Nuculites vaseyana. See *Nuculana vaseyana*.

NULLIPORA Lamark, 1801.**Nullipora?** *obtexta* White.

1862. *Nullipora?* *obtexta*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 33.
Chemung Group: Burlington, Iowa.

(CEHLERTELLA Hall, 1892.)

Cehlertella pleurites. See *Lingulodiscus pleurites*.

OLIGOPORUS Meek and Worthen, 1860.**Oligoporus bollulus** Miller and Gurley.

1894. *Oligoporus bollulus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 7, pl. 1, fig. 3.

Keokuk Group: Boonville, Missouri.

Oligoporus blairi Miller and Gurley.

1894. *Oligoporus blairi*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 6, pl. 1, figs. 2, 6; pl. 2, fig. 7.

Keokuk Group: Boonville, Missouri.

Oligoporus coreyi Meek and Worthen.

1870. *Oligoporus Coreyi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 34.

Keokuk Group: Crawfordsville, Indiana.

Oligoporus coreyi Meek and Worthen—Continued.

1895. *Oligoporus coreyi*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 183.
Keokuk Shales: Crawfordville, Indiana.
1896. *Oligoporus coreyi*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 186, pl. 6, figs. 25-29.
Subcarboniferous (Keokuk Group?): Indiana.

Oligoporus danae Meek and Worthen.

1860. *Melonites Danae*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 397.
Keokuk L. S.: Jersey County, near Warsaw, Illinois.
1860. *Oligoporus Danae*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 474.
1866. *Oligoporus Danae*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 249, pl. 17, fig. 8.
Keokuk L. S.: Jersey County, Illinois; Warsaw, Illinois; Fenton, Missouri.
1894. *Oligoporus danae*. Keyes, Mo. Geol. Surv., vol. 4, p. 126, pl. 17, figs. 2a, b.
Keokuk L. S.: Felton and Curryville, Missouri; Keokuk, Iowa.
1895. *Oligoporus danae*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 182, pl. 20, figs. 2a, b.
Keokuk L. S.: Felton, St. Louis County, and Curryville, Pike County, Missouri; Keokuk, Iowa; Jersey County, Illinois.
1896. *Oligoporus danae*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 193, pl. 6, figs. 30-34.
Keokuk Group: Keokuk, Iowa; Warsaw and Alton, Illinois.

Oligoporus missouriensis Jackson.

1896. *Oligoporus missouriensis*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 184, pl. 9, figs. 50-52.
Augusta L. S. (?): Webb City, Missouri.

Oligoporus mutatus Keyes.

1894. *Oligoporus mutatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 126, pl. 15, figs. 4a, b.
Keokuk L. S.: Keokuk, Iowa.
1895. *Oligoporus mutatus*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 183, pl. 18, figs. 4a, b.
Keokuk L. S.: Keokuk, Iowa.

Oligoporus nobilis Meek and Worthen.

1868. *Oligoporus nobilis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 358.
Burlington L. S.: Calhoun County, Illinois.
1873. *Oligoporus nobilis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 476, pl. 11, fig. 3.
Burlington L. S.: Calhoun County, Illinois.
1895. *Oligoporus nobilis*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 182.
Burlington L. S.: Calhoun County, Illinois.
1896. *Oligoporus nobilis*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 198, pl. 6, fig. 35.
Keokuk Group: Keokuk, Iowa, or Warsaw, Illinois.

Oligoporus parvus Hambach.

1884. *Oligoporus parvus*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 550, pl. C., fig. 3.
St. Louis L. S.: St. Louis, Missouri.
1894. *Oligoporus parvus*. Keyes, Mo. Geol. Surv., vol. 4, p. 127.
St. Louis L. S.: St. Louis, Missouri.
1895. *Oligoporus parvus*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 183.
St. Louis L. S.: St. Louis, Missouri.

Oligoporus sulcatus Miller and Gurley.

1894. *Oligoporus sulcatus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 8, pl. 1, figs. 4, 5.
St. Louis Group: Hardin County, Kentucky.

(OLLACBINUS Cumberland, 1826.)

Ollacrinus papillatus. See *Gilbertsocrinus tuberculosus*.

Ollacrinus tuberculosus. See *Gilbertsocrinus tuberculosus*.

Ollacrinus typus. See *Gilbertsocrinus typus*.

OMPHALOTROCHUS Meek, 1864.

Omphalotrochus springvalensis White.

1876. *Euomphalus Springvalensis*. White, Proc. Acad. Nat. Sci. Phil., p. 32.

Kinderhook Group: Springdale, Humboldt County, Iowa.

1880. *Euomphalus springvalensis*. White, Cont. to Inv. Pal., No. 8, p. 167, pl. 41, figs. 1a, b.

Kinderhook Group: Springdale, Humboldt County, Iowa.

1890. *Straparollus springvalensis*. Keyes, Am. Geol., vol. 5, p. 195.

Kinderhook Group: Humboldt County, Iowa.

1894. *Omphalotrochus springvalensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 162, pl. 51, fig. 7.

Lower Burlington L. S.: Louisiana, Missouri.

Omphalotrochus whitneyi Meek.

1864. *Euomphalus Whitneyi*. Meek, Pal. Cal., vol. 1, p. 15, pl. 2, figs. 8, 8a.

(Name *Omphalotrochus* suggested.)

Carboniferous: Bass's Ranch, Shasta County, California.

ONCODOCERAS Hyatt, 1893.

Oncodoceras rockfordense Meek and Worthen.

1866. *Nautilus (Cryptoceras) rockfordensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 275.

Goniatite L. S.: Rockford, Indiana.

1868. *Gyroceras? Rockfordensis*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 459, pl. 14, figs. 2a, b.

Goniatite L. S.: Rockford, Indiana.

1891. *Solenochilus rockfordense*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 89, pl. 16, fig. 3, pl. 17, fig. 1.

Waverly or Knobstone Group: Rockford, Indiana.

1892. *Solenochilus rockfordense*. Miller, 17th Rep. Geol. Surv. Ind., p. 699, pl. 16, fig 3; pl. 17, fig. 1.

Waverly or Knobstone Group: Rockford, Indiana.

1893. *Oncodoceras (Solenochilus) rockfordiense*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 456.

ONYCHASTER Meek and Worthen, 1868.

Onychaster asper Miller.

1891. *Onychaster asper*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 74, pl. 13, figs. 3-5.

Keokuk Group: Boonville, Missouri.

1892. *Onychaster asper*. Miller, 17th Rep. Geol. Surv. Ind., p. 684, pl. 13, figs. 3-5.

Keokuk Group: Boonville, Missouri.

1894. *Onychaster asper*. Keyes, Mo. Geol. Surv., vol. 4, p. 131.

Keokuk L. S.: Boonville, Missouri.

***Onychaster barrisi* Hall.**

- *1861. *Protaster barrisi*. Hall, Desc. New Spec. Crin., p. 18.
Burlington L. S.
1873. *Onychaster Barrisi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 476,
pl. 10, fig. 1.
Burlington L. S.: Burlington, Iowa.

***Onychaster confragosus* Miller.**

1891. *Onychaster confragosus*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind.,
p. 74, pl. 12, figs. 6, 7.
Keokuk Group: Boonville, Missouri.
1892. *Onychaster confragosus*. Miller, 17th Rep. Geol. Surv. Ind., p. 684, pl. 12,
figs. 6, 7.
Keokuk Group: Boonville, Missouri.

***Onychaster demissus* Miller.**

1891. *Onychaster demissus*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 75,
pl. 12, figs. 8-10.
Keokuk Group: Boonville, Missouri.
1892. *Onychaster demissus*. Miller, 17th Rep. Geol. Surv. Ind., p. 685, pl. 12,
figs. 8-10.
Keokuk Group: Boonville, Missouri.

***Onychaster flexilis* Meek and Worthen.**

1868. *Onychaster flexilis*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 526,
figs. A-D.
Keokuk Group: Crawfordsville, Indiana.
1869. *Onychaster flexilis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 83.
1873. *Onychaster Flexilis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 510, pl. 16,
fig. 3.
Keokuk Group.

ONYCHOCRINUS Lyon and Casseday, 1859.***Onychocrinus asteriaformis* Hall.**

1861. *Forbesiocrinus asteriaformis*. Hall, Desc. New Spec. Crin., p. 9.
Burlington, L. S.
1861. *Forbesiocrinus asteriaformis*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 320.
Burlington L. S.: Burlington, Iowa.
1872. *Forbesiocrinus asteriaformis*. Hall, Photo. Plates of Crinoids, pl. 6 figs.
10, 11.

***Onychocrinus cantonensis* Miller and Gurley.**

1890. *Onychocrinus cantonensis*. Miller and Gurley, 16th Rep. Geol. Surv. Ind.,
p. 359, pl. 7, fig. 9.
Keokuk Group: Near Canton, Indiana.

***Onychocrinus distensus* Worthen.**

1882. *Onychocrinus distensus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist.,
p. 31.
Chester L. S.: Monroe County, Illinois.
1883. *Onychocrinus distensus*. Worthen, Geol. Surv. Ill., vol. 7, p. 307, pl. 29, fig. 5.
Chester L. S.: Monroe County, Illinois.

***Onychocrinus diversus* Meek and Worthen.**

1866. *Onychocrinus diversus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 256.
Upper Burlington Group: Burlington, Iowa.
1868. *Onychocrinus diversus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 492,
pl. 17, figs. 5a, b.
Burlington Group: Burlington, Iowa.

***Onychocrinus exculptus* Lyon and Casseday.**

1860. *Onychocrinus exculptus*. Lyon and Casseday, Am. Jour. Sci. (2), vol. 29, p. 78.
Subcarboniferous: Clear Creek, Hardin County, Kentucky.
Montgomery County, Indiana.
1860. *Forbesiocrinus? Norwoodi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 389.
Keokuk L. S.: Near Nauvoo, Illinois.
1866. *Onychocrinus Norwoodi*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 245,
pl. 17, fig. 3.
Keokuk L. S.: River bluff, near south line of Monroe County, Illinois.
1873. *Onychocrinus exculptus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 498,
pl. 14, fig. 4.
Keokuk Group: Crawfordsville, Indiana.
1882. *Onychocrinus exculptus*. White, 11th Rep. Geol. Surv. Ind., p. 365, pl. 40,
fig. 1.
Keokuk Group: Crawfordsville, Indiana.

***Onychocrinus magnus* Worthen.**

1875. *Onychocrinus magnus*. Worthen, Geol. Surv. Ill., vol. 6, p. 520, pl. 31, fig. 5.
St. Louis Group: Monroe County, Illinois.

***Onychocrinus monroensis* Meek and Worthen.**

1861. *Forbesiocrinus Monroensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 130.
Keokuk L. S.: River bluff, near south line of Monroe County, Illinois.
1866. *Onychocrinus monroensis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 244,
pl. 17, fig. 7.
Keokuk Group: River bluff, near south line of Monroe County, Illinois.
1894. *Onychocrinus monroensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 224, pl. 30, fig. 2.
St. Louis L. S.: St. Louis, Missouri.

Onychocrinus norwoodi*. See *Onychocrinus exculptus*.**Onychocrinus parvus* Miller and Gurley.**

1894. *Onychocrinus parvus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat.
Hist., p. 52, pl. 4, fig. 5.
Kaskaskia Group: Shoals, Martin County, Indiana.

***Onychocrinus pulaskiensis* Miller and Gurley.**

1895. *Onychocrinus pulaskiensis*. Miller and Gurley, Bull. No. 6, Ill. State Mus.
Nat. Hist., p. 40, pl. 4, figs. 1, 2.
Kaskaskia Group: Pulaski County, Kentucky.

***Onychocrinus ramulosus* Lyon and Casseday.**

1859. *Forbesiocrinus ramulosus*. Lyon and Casseday, Am. Jour. Sci. (2), vol. 28,
p. 237.
Subcarboniferous L. S.: Hardin County, Kentucky; Indiana.
1882. *Onychocrinus ramulosus*. White, 11th Rep. Geol. Surv. Ind., p. 366, pl. 39,
figs. 2, 3.
Keokuk Group: Crawfordsville, Indiana.

***Onychocrinus ulrichi* Miller and Gurley.**

1890. *Onychocrinus ulrichi*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13,
p. 17, pl. 3, figs. 2, 3.
Keokuk Group: Crawfordsville, Ind.
1890. *Onychocrinus ulrichi*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 339,
pl. 3, figs. 2, 3.
Keokuk Group: Crawfordsville, Indiana.

***Onychocrinus whitfieldi*. See *Taxocrinus whitfieldi*.**

ORACARDIA Herrick, 1888.

Oracardia cornuta Herrick.

1888. *Oracardia cornuta*. Herrick, Bull. Den. Univ., vol. 4, p. 42, pl. 4, fig. 6.
Waverly Group: Ohio.
1889. *Oracardia cornuta*. Herrick, Am. Geol., vol. 3, pl. 2, fig. 6.
1895. *Oracardia cornuta*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, figs. 6, 8-10.
Cuyahoga Shale: Ohio.
Kinderhook Freestone: Granville, Ohio.

Oracardia ornata Herrick.

1888. *Oracardia ornata*. Herrick, Bull. Den. Univ., vol. 4, p. 41, pl. 4, figs. 8-10.
Waverly Group: Granville, Ohio.
1889. *Oracardia ornata*. Herrick, Am. Geol. vol. 3, pl. 2, figs. 8-10.

ORBICULOIDEA D'Orbigny, 1847.

Orbiculoidea batesvillensis Weller.

1897. *Orbiculoidea batesvillensis*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 255,
pl. 18, figs. 4, 5.
Batesville S. S.: Batesville, Arkansas.

Orbiculoidea capax White.

1862. *Discina capax*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 30.
Chemung Group: Burlington, Iowa.
1865. *Discina capax*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 112.
Marshall Group: Girard, Trumbull County, Ohio.
1870. *Discina Capax?* Winchell, Proc. Am. Phil. Soc., vol. 11, p. 249.
Waverly Group: Rockville, Ohio.

Orbiculoidea capuliformis McChesney.

1860. *Discina capuliformis*. McChesney, Desc. New Pal. Foss., p. 72.
Coal Measures: Springfield, Illinois; 12 miles northwest of Richmond,
Missouri.
1868. *Discina capuliformis*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 23,
pl. 2, fig. 20.
Coal Measures: Springfield, Illinois; 12 miles northwest of Richmond,
Missouri.

Orbiculoidea convexa Shumard.

1858. *Discina convexa*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 221.
Upper Coal Measures: Valley of Verdigris River, Kansas.
1884. *Discina convexa*. White, 13th Rep. Geol. Surv. Ind., p. 121, pl. 25, fig. 9.
Coal Measures: Vermilion County, Indiana.
1886. *Discina convexa*. Heilprin, 2d Geol. Surv. Penn., Ann. Rep. for 1885, p. 452,
fig. 18.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Discina convexa*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2,
pt. 2, p. 267, fig. 18.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Discina convexa*. Herrick, Bull. Den. Univ., vol. 2, p. 144, pl. 3, fig. 19.
Coal Measures: Flint Ridge, Ohio.
1894. *Discina convexa*. Keyes, Mo. Geol. Surv., vol. 5, p. 40, pl. 35, fig. 7.
Upper Coal Measures: Near Richmond, Missouri.

Orbiculoidea gallaheri Winchell.

1865. *Discina Gallaheri*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 112.
Marshall Group: Hillsdale, Michigan; Gerard and Wethersfield, Trumbull
County, Ohio.
1870. *Discina Gallaheri*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 249.
Waverly Group: Granville, Ohio; near Shafer's, Pennsylvania.

Orbiculoidea herzeri Hall and Clarke.

1892. *Orbiculoidea Herzeri*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 126 (foot-note), p. 178, pl. 4E, fig. 19; pl. 4F, figs. 9-13, 30.
Cuyahoga Shale: Berea, Ohio.
1892. *Orbiculoidea pulchra*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 5, figs. 11, 17.
Cuyahoga Shale: Berea, Ohio.
1892. *Orbiculoidea pulchra*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 4E, fig. 19; pl. 4F, figs. 8-13, 30, 32.
Cuyahoga Shale: Berea, Baconberg, and Newark, Ohio.
1892. *Orbiculoidea* compare *O. pulchra*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 4F, figs. 14-16.
Waverly Group: Meadville, Pennsylvania.
1897. *Orbiculoidea Herzeri*. Hall, 14th Ann. Rep. N. Y. State Geol., p. 333, pl. 2, figs. 14-20.
Cuyahoga Shale: Berea, Baconsburg, etc., Ohio.

Orbiculoidea illinoisensis Miller and Gurley.

1894. *Discina illinoisensis*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 70, pl. 7, figs. 2-5.
Coal Measures: Knox County and Peoria County, Illinois.

Orbiculoidea keokuk Gurley.

1884. *Discina Keokuk*. Gurley, New Carb. Foss., Bull. No. 2, p. 6.
Keokuk Group: Crawfordsville, Indiana.

Orbiculoidea magnifica Herrick.

1891. *Discina magnifica*. Herrick, Bull. Geol. Soc. Am., vol. 2, p. 46, pl. 1, fig. 17.
Waverly Group: Hemlock Falls, Ashland County, Ohio.

Orbiculoidea manhattanensis Meek and Hayden.

1859. *Discina Manhattanensis*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 25.
Upper Coal Measures: Kansas River, opposite Manhattan, Kansas.
1892. *Orbiculoidea Manhattanensis*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 5, fig. 12.
Coal Measures: Riley County, Kansas.
1892. *Orbiculoidea Manhattanensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 4E, fig. 20.
Coal Measures: Riley County, Kansas.

Orbiculoidea missouriensis Shumard.

1858. *Discina Missouriensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 221.
Middle Coal Measures: Lexington and Charbonnier, Missouri.
1873. *Discina nitida?* Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 572, pl. 25, fig. 1.
Coal Measures: Illinois.
1882. *Discina Meekana*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 228.
Coal Measures: Carbon Hill and Flint Ridge, Ohio; Illinois; Iowa.
1884. *Discina nitida*. White, 13th Rep. Geol. Surv. Ind., p. 121, pl. 25, fig. 10.
Coal Measures: Indiana; Illinois; Iowa; Missouri; abundant at Cannelton and Horse Shoe of Little Vermilion.
1887. *Discina Meekana*. Herrick, Bull. Den. Univ., vol. 2, pl. 2, figs. 8, 9.
Coal Measures: Flint Ridge, Ohio.
1887. *Discina nitida*. Herrick, Bull. Den. Univ., vol. 2, p. 145, pl. 2, figs. 8, 9.
Coal Measures: Flint Ridge, Ohio.
1888. *Discina nitida*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 226.
Lower Coal Measures: Des Moines, Iowa.
1891. *Discina Meekana*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 598, pl. 15, figs. 1-3, also p. 603.
Coal Measures: Carbon Hill and Flint Ridge, Ohio.

Orbiculoidea missouriensis Shumard—Continued.

1892. *Orbiculoidea nitida*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 5, fig. 16.
Lower Coal Measures; Springfield, Illinois.
1892. *Orbiculoidea nitida*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 4F, figs. 23-29.
Coal Measures: Springfield, Illinois; Grover, Missouri.
1894. *Discina nitida*. Keyes, Mo. Geol. Surv., vol. 5, p. 39, pl. 35, fig. 6.
Coal Measures: Clinton, Lexington, and Richmond, Missouri.
1895. *Discina Meekana*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 483, pl. 11, figs. 1-3, also p. 488.
Coal Measures: Carbon Hill, Hocking County, Ohio.

Orbiculoidea munda Miller and Gurley.

1894. *Discina munda*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 71, pl. 7, figs. 6, 7.
Upper Coal Measures: Kansas City, Missouri.

Orbiculoidea newberryi. See Lingulodiscina newberryi.**Orbiculoidea nitida Phillips.**

1894. *Discina nitida*. Walcott, Pal. Eureka Dist., p. 213, pl. 7, figs. 4, 4a.
Lower Carboniferous L. S.: White Pine Mining District, Nevada.

Orbiculoidea patellaris Winchell.

1863. *Discina patellaris*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 4.
Yellow S. S.: Burlington, Iowa.

Orbiculoidea pleurites. See Lingulodiscina pleurites.**Orbiculoidea pulchra. See Orbiculoidea hertzeri.****Orbiculoidea saffordi Winchell.**

1869. *Discina Saffordi*. Winchell, Safford's Geol. of Tenn., p. 443.
Shales just above Black Shale: Hickman and Maury counties, Tennessee.
1870. *Discina Saffordi*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 248.
Waverly Group: Hickman County, Tennessee.

Orbiculoidea sampsoni Miller.

1891. *Discina sampsoni*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 80, pl. 13, figs. 10, 12.
Chouteau L. S.: Sedalia, Missouri.
1892. *Discina sampsoni*. Miller, 17th Rep. Geol. Surv. Ind., p. 690, pl. 13, figs. 10, 12.
Chouteau L. S.: Sedalia, Missouri.

Orbiculoides subtrigonalis McChesney.

1865. *Discina subtrigonalis*. McChesney, Ill. New Spec. Foss.
Coal Measures: La Salle, Illinois.
1865. *Discina trigonalis*. McChesney, Ill. New Spec. Foss., pl. 2, figs. 19a, b.
1868. *Discina subtrigonalis*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 24, pl. 2, figs. 19a, b.
Coal Measures: La Salle, Illinois.

Orbiculoidea tenuilineata Meek and Hayden.

1859. *Discina tenuilineata*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 25.
Upper Coal Measures: Cottonwood Creek, Kansas.

Orbiculoidea utahensis Meek.

1877. *Discina* sp. undt. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 99, pl. 10, fig. 3.
Upper Carboniferous: Weber Canyon, Wasatch Range, Utah.
1877. *Discina utahensis*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 99. (Also see footnote, p. 9.)

Orbiculoidea varsoviensis Worthen.

1884. *Discina varsoviensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 23.
Keokuk L. S.: Warsaw, Illinois.
1890. *Discina varsoviensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 102, pl. 11, fig. 7.
Keokuk L. S.: Warsaw, Illinois.

Orbiculoidea (species undetermined).

1872. *Orbiculoidea*, sp. Meek, U. S. Geol. Surv. Nebr., p. 158, pl. 4, fig. 3.
Upper Coal Measures: Three-fourths of a mile west of Nebraska City,
Nebraska.
1876. *Discina* —? —. White, Powell's Rep. Geol. Uinta Mts., p. 89.
Lower Aubrey Group: Beehive Point, near Horseshoe Canyon, Utah.
1876. *Discina* —? —. White, Powell's Rep. Geol. Uinta Mts., p. 91.
Upper Aubrey Group: Beehive Point, near Horseshoe Canyon, Utah.
1887. *Orbiculoidea*? sp. Herrick, Bull. Den. Univ., vol. 2, pl. 2, fig. 10.
Coal Measures: Flint Ridge, Ohio.
1888. *Discina*, sp. Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 2.
Bedford Shale: Central College, Ohio.
1892. *Orbiculoidea*, sp. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 4F, fig. 31.
Coal Measures: Near Nebraska City, Nebraska.
1892. *Orbiculoidea* sp. ? Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 4K, fig. 4.
St. Louis L. S.: Crittenden County, Kentucky.
1895. *Discina*, sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 2.
Bedford Shale: Central College, Ohio.

OROPHOCCRINUS von Seebach, 1864.**Orophocrinus campanulatus** Hambach.

1884. *Codonites campanulatus*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 553,
pl. D, figs. 8, 9.
Lower Burlington L. S.: Sedalia, Missouri.
1886. *Orophocrinus stelliformis* var. *campanulatus*. Etheridge and Carpenter, Cat.
Blast., p. 289, pl. 16, fig. 5.
Lower Burlington L. S.: Burlington, Iowa.
1894. *Orophocrinus campanulatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 142.
Lower Burlington L. S.: Sedalia, Missouri.

Orophocrinus conicus Wachsmuth and Springer.

1890. *Orophocrinus conicus*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8,
p. 201, pl. 15, figs. 1-3.
Kinderhook Group: Le Grand, Iowa.

Orophocrinus fusiformis Wachsmuth and Springer.

1890. *Orophocrinus fusiformis*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8,
p. 203, pl. 17, fig. 4.
Kinderhook Group: Le Grand, Iowa.

Orophocrinus gracilis Meek and Worthen.

1870. *Codonites gracilis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 32.
Lower Burlington L. S.: Burlington, Iowa.
1873. *Codonites gracilis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 467, pl. 8,
fig. 6.
Burlington L. S.: Burlington, Iowa.

Orophocrinus inopinatus Rowley and Hare.

1891. *Codonites inopinatus*. Rowley and Hare, The Kansas City Scientist, vol. 5,
p. 100, pl. 2, figs. 11, 12; p. 118, pl. 3, fig. 17.
Lower Burlington L. S.: Louisiana, Missouri.

Orophocrinus sirius White.

1862. *Pentremites sirius*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 20, fig. 3.
Upper Burlington L. S.: Burlington, Iowa.

Orophocrinus stelliformis Owen and Shumard.

1850. *Pentremites stelliformis*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 67, pl. 7, figs. 16a, b.
Subcarboniferous L. S.: Burlington, Iowa.
1852. *Pentremites stelliformis*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 593, tab. 5 A, figs. 16a, b.
Subcarboniferous L. S.: Burlington, Iowa.
- *1864. *Orophocrinus stelliformis*. von Seebach, Nachr. K. Gesellach. Wissensch. Gottingen, p. 110.
1873. *Codonites stelliformis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 464, pl. 9, fig. 5.
Burlington L. S.: Burlington, Iowa.
1874. *Codonites stelliformis*. Meek, Am. Jour. Sci. (3), vol. 7, p. 374.
1886. *Orophocrinus stelliformis*. Etheridge and Carpenter, Cat. Blast., p. 287, pl. 11, figs. 8, 9; pl. 15, figs. 11-15; pl. 16, figs. 5-7; pl. 17, fig. 12.
Lower Burlington L. S.: Burlington, Iowa.
1894. *Orophocrinus stelliformis*. Keyes, Mo. Geol. Surv., vol. 4, p. 141, pl. 17, figs. 14a, b.
Lower Burlington L. S.: Hannibal, Louisiana, Sedalia and Springfield, Missouri.

Orophocrinus stelliformis var. *campanulatus*. See *Orophocrinus campanulatus*.

Orophocrinus whitei Hall.

1861. *Codaster whitei*. Hall, Desc. New Spec. Crin., p. 10.
Burlington L. S.
1861. *Codaster Whitei*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 327.
Burlington L. S.: Burlington, Iowa.
1893. *Orophocrinus whitei*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 36, pl. 3, figs. 25-28.
Burlington L. S.: Burlington, Iowa.

ORTHIS Dalman, 1827.

Orthis arachnoidea. See *Derbya crassa*.

Orthis burlingtonensis. See *Rhipidomella burlingtonensis*.

Orthis carbonaria. See *Rhipidomella pecosi*.

Orthis clarkensis. See *Rhipidomella clarkensis*.

Orthis cooperensis. See *Rhipidomella dubia*.

Orthis crenistria. See *Derbya crassa*.

Orthis dalyana. See *Rhipidomella dalyana*.

Orthis dubia. See *Rhipidomella dubia*.

Orthis flava Winchell.

1865. *Orthis flava*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 117.
Yellow S. S.: Burlington, Iowa.

Orthis inequalis. See *Orthothetes inæqualis*.

Orthis kaskaskiensis. See *Derbya kaskaskiensis*.

Orthis keokuk. See *Derbya keokuk*.

- Orthis lasallensis*. See *Derbya crassa*.
Orthis michelini. See *Rhipidomella michelini* and *R. oweni*.
Orthis michelini var. *burlingtonensis*. See *Rhipidomella burlingtonensis*.
Orthis michelini var. *nevadensis*. See *Rhipidomella nevadensis*.
Orthis missouriensis. See *Rhipidomella missouriensis*.
Orthis occasus. See *Rhipidomella occasus*.
Orthis oweni. See *Rhipidomella oweni*.
Orthis pecosi. See *Rhipidomella pecosi*.
Orthis pratteni. See *Derbya crassa*.
Orthis resupinata. See *Schizophoria resupinata*.
Orthis resupinoides. See *Schizophoria resupinoides*.
Orthis richmonda. See *Derbya crassa*.
Orthis robusta. See *Derbya robusta*.
Orthis striato-costata. See *Meekella striatocostata*.
Orthis subelliptica. See *Rhipidomella subelliptica*.
Orthis swallowi. See *Schizophoria swallowi*.
Orthis thiemii. See *Rhipidomella thiemii*.
Orthis umbraculum. See *Derbya crassa* and *Orthothetes imbraculum*.
Orthis vanuxemi. See *Rhipidomella vanuxemi*.
Orthis vanuxemi var. *gracilis*. See *Rhipidomella vanuxemi* var. *pulchellus*.
Orthis vanuxemi var. *pulchellus*. See *Rhipidomella vanuxemi* var. *pulchellus*.

(ORTHISINA D'Orbigny, 1850.)

- Orthisina crassa*. See *Derbya crassa*.
Orthisina missouriensis. See *Meekella striatocostata*.
Orthisina occidentalis. See *Meekella striatocostata*.
Orthisina shumardiana. See *Meekella striatocostata*.
Orthisina umbraculum. See *Derbya crassa*.
Orthisina (species undetermined).

1859. *Orthisina*, sp. (?) Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 395.
 White Permian L. S.: Guadalupe Mountains.

ORTHOCERAS Breynius, 1732.

Orthoceras aculeatum Swallow.

1858. *Orthoceras aculeatum*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 200.
 Upper Coal Measures: Valley of Kansas River, Kansas.

Orthoceras annulo-costatum. See *Orthoceras randolphense*.*Orthoceras arcuatellum* Winchell.

1862. *Orthoceras arcuatellum*? Winchell, Am. Jour. Sci. (2), vol. 33, p. 355.
 Marshall S. S.: Marshall, Michigan.

Orthoceras baculum Meek.

1860. *Orthoceras baculum*. Meek, Proc. Acad. Nat. Sci. Phil., p. 310.
Lower Carboniferous †: East side of Ruby Valley, latitude 40°, longitude 115° 20'.
1876 *Orthoceras baculum*. Meek, Simpson's Expl. Gt. Basin Utah, p. 354, pl. 1, figs. 10a, b.
Lower Carboniferous †: East side of Ruby Valley.

Orthoceras chemungense Swallow.

1860. *Orthoceras Chemungense*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 660.
Lithographic L. S.: Marion and Pike counties, Missouri.

Orthoceras chemungense* var. *chouteauense*. See *Orthoceras chouteauense*.*Orthoceras chesterense Swallow.**

1863. *Orthoceras Chesterense*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 98.
Ste. Genevieve L. S.: Chester, Illinois; St. Mary's, Missouri.
1894. *Orthoceras chesterense*. Keyes, Mo. Geol. Surv., vol. 5, p. 225.
Kaaskaskia L. S.: Ste. Mary, Missouri.

Orthoceras chouteauense Swallow.

1860. *Orthoceras Chemungense*, var. *Chouteauense*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 660.
Chouteau L. S.: Cooper County, Missouri.
1894. *Orthoceras chouteauense*. Keyes, Mo. Geol. Surv., vol. 5, p. 225.
Chouteau L. S.: Cooper County and Louisiana, Missouri.

Orthoceras clinocameratum Winchell.

1862. *Orthoceras clinocameratum*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 356.
Marshall S. S.: Hardwood Pt., on shore of Saginaw Bay, Michigan.

Orthoceras colletti Miller.

1892. *Orthoceras colletti*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 67, pl. 10, fig. 1.
Upper Coal Measures: Kansas City, Missouri.
1894. *Orthoceras colletti*. Miller, 18th Rep. Geol. Surv. Ind., p. 321, pl. 10, fig. 1.
Upper Coal Measures: Kansas City, Missouri.

Orthoceras cribrosum Geinitz.

1866. *Orthoceras cribrosum*. Geinitz, Carbon. und Dyas in Nebr., p. 4, tab. 1, fig. 5.
Nebraska City, Nebraska.
1872. *Orthoceras cribrosum*. Meek, U. S. Geol. Surv. Nebr., p. 234, pl. 11, figs. 18a, b.
Upper Coal Measures: Nebraska City, Nebraska; Illinois.
Lower Coal Measures: Illinois; West Virginia.
1887. *Orthoceras cribrosum?* Herrick, Bull. Den. Univ., vol. 2, p. 17, pl. 5, fig. 2.
Coal Measures: Flint Ridge, Ohio.
1892. *Orthoceras cribrosum*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 65.
Upper Coal Measures: Turner Station, near Kansas City, Missouri.
1894. *Orthoceras cribrosum*. Miller, 18th Rep. Geol. Surv. Ind., p. 319.
Upper Coal Measures: Turner Station, near Kansas City, Missouri.
1897. *Orthoceras cribrosum*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 43.
Upper Coal Measures: Poteau Mountain, Indian Territory.

Orthoceras dædalus* Hall. See *Orthoceras indianense*.*Orthoceras dawsonanum Miller.**

1868. *Orthoceras perstrictum*. Dawson, Acad. Geol., page 312, fig. 129. (Not *O. perstrictum* Barrande.)
Carboniferous L. S.: Windsor, Nova Scotia.
1883. *Orthoceras dawsonanum*. Miller, Am. Pal. Foss., 2d Ed., p. 307.

Orthoceras dolatum Dawson.

1868. *Orthoceras dolatum*. Dawson, Acad. Geol., p. 311, fig. 126.
Carboniferous L. S.: Windsor, Nova Scotia.

Orthoceras epigrus Hall.

1856. *Orthoceras epigrus*. Hall, Trans. Albany Inst., vol. 4, p. 33.
St. Louis L. S.: Spergen Hill, Indiana.
1882. *Orthoceras epigrus*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 91, pl. 8, fig. 2.
St. Louis Group: Spergen Hill, Indiana.
1883. *Orthoceras epigrus*. Hall, 12th Rep. Geol. Surv. Ind., p. 373, pl. 31, fig. 2.
St. Louis Group: Spergen Hill and Lanesville, Indiana.

Orthoceras eurekaense Walcott.

1884. *Orthoceras Eurekaense*. Walcott, Pal. Eureka Dist., p. 265, pl. 23, figs. 2, 2a.
Lower Carboniferous: Eureka District, Nevada.
1897. *Orthoceras eurekaense* (?) Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 270, pl. 20, figs. 3, 3a.
Batesville S. S.: Batesville, Arkansas.

Orthoceras expansum Meek and Worthen.

1860. *Orthoceras expansum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 468.
Carboniferous: McDonough County, Illinois.
1861. *Actinoceras expansum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 148.
1866. *Orthoceras expansum*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 286, pl. 20, figs. 8a-c.
St. Louis Group ? : McDonough County, Illinois.

Orthoceras fanslerensis Keyes.

1896. *Orthoceras fanslerensis*. Keyes, Proc. Iowa Acad. Sci., vol. 3, p. 77, fig. 4.
Lower Coal Measures: Fanslers, Guthrie County, Iowa.

Orthoceras harttanum Miller.

1868. *Orthoceras laqueatum*. Hartt, Dawson's Acad. Geol., p. 312, fig. 128. (Not *O. laqueatum* Hall, 1847.)
Carboniferous L. S.: Windsor, Nova Scotia.
1883. *Orthoceras harttanum*. Miller, Am. Pal. Foss., 2d Ed., p. 307.

Orthoceras harii Miller.

1891. *Orthoceras harii*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 87, pl. 16, fig. 2.
Upper Coal Measures: Near Kansas City, Missouri.
1892. *Orthoceras harii*. Miller, 17th Rep. Geol. Surv. Ind., p. 697, pl. 16, fig. 2.
Upper Coal Measures: Near Kansas City, Missouri.

Orthoceras heterocinctum Winchell.

1863. *Orthoceras heterocinctum*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 23.
Yellow S. S. to base of Burlington L. S.: Burlington, Iowa.
1888. *Orthoceras heterocinctum* ? Herrick, Bull. Den. Univ., vol. 4, p. 47.
Waverly Group: Lodi and Burbank, Ohio.

Orthoceras icarus Hall.

1886. *Orthoceras Icarus*. Hall, 5th Ann. Rep. N. Y. State Geol., pl. (118) 2, figs. 11-15.
Goniatite L. S.: Rockford, Indiana.
1888. *Orthoceras Icarus*. Beecher, Pal. N. Y., vol. 5, pt. 2, Supp., p. 31, pl. 118, figs. 11-15.
Goniatite L. S.: Rockford, Indiana.

Orthoceras illinoiense Worthen.

1883. *Orthoceras Illinoiensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 323.
Chester L. S.: Chester, Illinois.
1890. *Orthoceras illinoiensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 148, pl. 26,
figs. 1-1b.
Chester L. S.: Chester, Illinois.

Orthoceras indianense Hall.

1860. *Orthoceras indianensis*. Hall, 13th Ann. Rep. N. Y. State Cab. Nat. Hist.,
p. 107.
Goniatite L. S.: Rockford, Indiana.
1862. *Orthoceras Indianensis*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 354.
Marshall S. S.: Marshall, Calhoun County; Holland, Ottawa County;
Moscow, Hillsdale County; Hardwood Point, Huron County, Michigan.
1863. *Orthoceras Indianense*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 23.
Yellow S. S.: Burlington, Iowa.
1865. *Orthoceras Indianense*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 132.
Marshall Group: Hillsdale and Napoleon Cut, Jackson County, Michigan.
1870. *Orthoceras Indianense*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 258.
Waverly Group: Sciotoville, Ohio.
1886. *Orthoceras Dædalus*. Hall, 5th Ann. Rep. N. Y. State Geol., pl. (118) 2,
figs. 6-10.
Goniatite L. S.: Rockford, Indiana.
1888. *Orthoceras Indianense*. Beecher, Pal. N. Y., vol. 5, pt. 2, Supp., p. 30,
pl. 118, figs. 6-10.
Goniatite L. S.: Rockford, Indiana.
1888. *Orthoceras indianense*. Herrick, Bull. Den. Univ., vol. 3, pl. 9, figs. 33, 34.
Waverly Group: Licking County, Ohio.

Orthoceras isogramma Meek.

1871. *Orthoceras ? isogramma*. Meek, Proc. Acad. Nat. Sci. Phil., p. 172.
Lower Coal Measures: Newark, Ohio.

Orthoceras kikapooense Swallow.

1858. *Orthoceras kikapooense*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 197.
Upper Permian: Near Smoky Hill Fork, Kansas.

Orthoceras knoxense McChesney.

1860. *Orthoceras knoxensis*. McChesney, Desc. New Pal. Foss., p. 69.
Coal Measures: Danville, Springfield, Peoria, and Dr. E. Hall's mill, Knox
County, Missouri.

Orthoceras laqueatum. See *Orthoceras harttatum*.**Orthoceras lasallense** Worthen.

1883. *Orthoceras La Sallensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 324.
Coal Measures: Lasalle, Illinois.
1890. *Orthoceras lasallense*. Worthen, Geol. Surv. Ill., vol. 8, p. 149, pl. 26,
figs. 4, 4a.
Coal Measures: Lasalle, Illinois.

Orthoceras laterale Dawson.

1868. *Orthoceras laterale*. Dawson, Acad. Geol., p. 311.
Carboniferous L. S.: Kennetcook, Nova Scotia.

Orthoceras marshallense Winchell.

1862. *Orthoceras Marshallense*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 356.
Marshall S. S.: Marshall, Michigan.

Orthoceras michiganense Miller.

1862. *Orthoceras multincinctum*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 429. (Not *O. multincinctum* Hull, 1862.)

Marshall Group: Marshall and Holland, Michigan.

1833. *Orthoceras michiganense*. Miller, Am. Pal. Foss., 2d ed., p. 308.

Orthoceras mōniliforme. See *Orthoceras swallowanum*.

Orthoceras multincinctum. See *Orthoceras michiganense*.

Orthoceras munsterianum Meek and Worthen.

1873. *Orthoceras Munsterianum?* Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 23, figs. 5a-d.

St. Louis Group.

Orthoceras nobile Meek and Worthen.

1865. *Orthoceras nobile*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 256.

Chester Group: Randolph County, Illinois.

Orthoceras nova-mexicanum Marcou.

1858. *Orthoceras nova-mexicana*. Marcou, Geol. N. A., p. 44, pl. 7, fig. 1.

Mountain L. S.: Near summit of the Sierra de Sandia, behind Albuquerque, New Mexico.

Orthoceras occidentale Swallow.

1858. *Orthoceras occidentale*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 201.

Upper Coal Measures: Clifton Park, Kansas.

1894. *Orthoceras occidentale*. Keyes, Mo. Geol. Surv., vol. 5, p. 226.

Upper Coal Measures: Kansas City, Missouri.

Orthoceras occidentale. See *Orthoceras vinchellianum*.

Orthoceras okawense Worthen.

1883. *Orthoceras Okawensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 324.

Chester L. S.: Okaw bluff, near Red Bud, Randolph County, Illinois.

1890. *Orthoceras okawense*. Worthen, Geol. Surv. Ill., vol. 8, p. 149, pl. 26, fig. 3.

Chester L. S.: Near Red Bud, Randolph County, Illinois.

Orthoceras perstrictum Dawson. See *Orthoceras dawsonianum*.

Orthoceras randolphense Worthen.

1861. *Orthoceras annulo-costatum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 147. (Not *O. annulo-costatum* Boll, 1857.)

Chester L. S.: Chester, Illinois.

1866. *Orthoceras annulo-costatum*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 304, pl. 24, figs. 3a, b.

Chester Group: Chester, Illinois.

1882. *Orthoceras Randolphensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 38.

Chester Group.

1884. *Orthoceras Randolphensis?* Walcott, Pal. Eureka Dist., p. 265, pl. 18, fig. 17.

Lower Carboniferous: Eureka District, Nevada.

Orthoceras reticulatum Winchell.

1862. *Orthoceras reticulatum?* Winchell, Am. Jour. Sci. (2), vol. 33, p. 357.

Marshall S. S.: Marshall, Michigan.

Orthoceras robustum Winchell.

1862. *Orthoceras robustum*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 355.

Marshall S. S.: Marshall, Moscow, and Hanover, Michigan.

Orthoceras rushense McChesney.

1860. *Orthoceras rushense*. McChesney, Desc. New Pal. Foss., p. 68.
Coal Measures: Rush Creek, 5 miles below New Harmony, Indiana.
1873. *Orthoceras Rushensis?* Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 612,
pl. 30, fig. 4.
Upper Coal Measures: Springfield, Illinois.
1884. *Orthoceras Rushensis*. White, 13th Rep. Geol. Surv. Ind., p. 164, pl. 36, fig. 5.
Coal Measures: Eugene, Newport, Lodi, Merom, Graysville, New Harmony,
Rush Creek, and Newberg, Indiana.
1888. *Orthoceras rushensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 242.
Lower Coal Measures: Des Moines, Iowa.
1888. *Orthoceras rushensis?* Herrick, Bull. Den. Univ., vol. 4, pl. 7, fig. 1.
Waverly Group: Ohio.
1891. *Orthoceras rushensis?* White, Bull. U. S. Geol. Surv., No. 77, p. 22, pl. 2,
figs. 14-16.
Permian: Military Crossing, Baylor County, Texas.
1894. *Orthoceras rushense*. Keyes, Mo. Geol. Surv., vol. 5, p. 226, pl. 56, fig. 6.
Upper Coal Measures: Kansas City, Missouri.
1895. *Orthoceras rushensis* (?). Herrick, Geol. Surv. Ohio, vol. 7, pl. 18, fig. 1.
Cuyahoga Shale: Ohio.
1897. *Orthoceras conf. rushensis*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 43.
Upper Coal Measures: Scott County, Arkansas.

Orthoceras swallovanum Miller.

1858. *Orthoceras moniliforme*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 200.
(Not *O. moniliforme* Hall, 1847.)
Coal Measures: Valley of Verdigris River, Kansas.
1883. *Orthoceras swallovanum*. Miller, Am. Pal. Foss., 2d ed., p. 308.

Orthoceras vinchellianum Miller.

1862. *Orthoceras occidentale*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 356. (Not
O. occidentale Swallow, 1858.)
Marshall S. S.: Marshall and Moscow, Michigan.
1883. *Orthoceras vinchellianum*. Miller, Am. Pal. Foss., 2d ed., p. 308.

Orthoceras vindobonense Dawson.

1868. *Orthoceras Vindobonense*. Dawson, Acad. Geol., p. 311, fig. 127.
Carboniferous L. S.: Windsor, Nova Scotia.

Orthoceras vittatum Winchell.

1862. *Orthoceras vittatum?* Winchell, Am. Jour. Sci. (2), vol. 33, p. 355.
Marshall S. S.: Battle Creek and Holland, Michigan.

Orthoceras whitii Winchell.

1863. *Orthoceras Whitei*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 22.
Yellow S. S.: Burlington, Iowa.

Orthoceras (undetermined species).

1859. *Orthoceras* sp. (?) Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 400.
Dark Permian L. S.: Guadalupe Mountains.
1862. *Orthoceras* sp. ? Winchell, Am. Jour. Sci. (2), vol. 33, p. 357.
Marshall S. S.: Marshall, Michigan.
1873. *Orthoceras* (sp. undet.). Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 30,
fig. 5.
Coal Measures.
1884. *Orthoceras* sp. ? Walcott, Pal. Eureka Dist., p. 266.
Lower Carboniferous: Eureka District, Nevada.
1886. *Orthoceras* sp. ? Heilprin, 2d Geol. Surv. Penn., Ann. Rep. for 1885, p. 457.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.

Orthoceras (undetermined species)—Continued.

1886. *Orthoceras* sp. ? Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 277.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1888. *Orthoceras* (sp. undt.). Keyes, Proc. Acad. Nat. Sci. Phil., p. 242.
Lower Coal Measures: Des Moines, Iowa.
1888. *Orthoceras* sp. ? Herrick, Bull. Den. Univ., vol. 3, pl. 12, fig. 30.
Waverly Group: Licking County, Ohio.
1888. *Orthoceras* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 16.
Bedford Shale: Central College, Ohio.
1889. *Orthoceras* sp. Herrick, Am. Geol., vol. 3, pl. 4, fig. 16.
Bedford Shale: Ohio.
1895. *Orthoceras* sp. Herrick, Geol. Surv. Ohio., vol. 7, pl. 20, fig. 16.
Shale above Berea Grit: Ohio.
1897. *Orthoceras* sp. Smith, Proc. Am. Phil. Soc., vol. 35, p. 44.
Lower Coal Measures: Conway County, Arkansas.

ORTHONEMA Meek and Worthen, 1861.**Orthonema carbonarium Worthen.**

1884. *Orthonema carbonaria*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 7.
Coal Measures: Peoria County, Illinois.
1890. *Orthonema carbonarium*. Worthen, Geol. Surv. Ill., vol. 8, p. 145, pl. 24, figs. 4, 4a.
Coal Measures: Peoria County, Illinois.

Orthonema conicum Meek and Worthen.

1866. *Orthonema conica*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 270.
Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1873. *Orthonema conica*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 590, pl. 29, fig. 5.
Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1888. *Orthonema conica*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 240.
Lower Coal Measures: Des Moines, Iowa.

Orthonema salteri Meek and Worthen.

1860. *Eunema* ? *Salteri*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 464.
Upper Coal Measures: Springfield, Illinois.
1866. *Orthonema Salteri*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 381, pl. 31, figs. 14a-c.
Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.

Orthonema subtaeniatus Geinitz.

1866. *Murchisonia subtaeniata*. Geinitz, Carb. und Dyas in Nebr., p. 12, tab. 1, fig. 18.
Nebraska City, Nebraska.
1872. *Orthonema subtaeniata*. Meek, U. S. Geol. Surv. Nebr., p. 228, pl. 11, fig. 10.
Upper Coal Measures: Nebraska City, Nebraska; Western Iowa.

Orthonema (species undetermined).

1887. *Orthonema* ? sp. Herrick, Bull. Den. Univ., vol. 2, pl. 14, fig. 10.
Coal Measures: Flint Ridge, Ohio.

ORTHONOTA Conrad, 1841.**Orthonota phaselia Winchell.**

1863. *Orthonota phaselia*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 12.
Yellow S. S.: Burlington, Iowa.

***Orthonota rectidorsalis* Winchell.**

1862. *Orthonota rectidorsalis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 414.
Marshall Group: Moscow, Michigan.
1888. *Orthonota rectidorsalis*. Herrick, Bull. Den. Univ., vol. 3, p. 65, pl. 9, fig. 6.
Waverly Group: Licking County, Ohio.

Orthonota ventricosa. See *Spathella ventricosa*.

ORTHONYCHIA Hall, 1843.***Orthonychia acutirostre* Hall.**

1856. *Capulus acutirostris*. Hall, Trans. Albany Inst., vol. 4, p. 31.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana.
1858. *Capulus acutirostris*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 665, pl. 23, figs. 14a, b.
Warsaw L. S.: Warsaw, Illinois; Spergen Hill and Bloomington, Indiana.
1866. *Platyceras uncum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 264.
Keokuk L. S.: Nauvoo, Illinois.
1873. *Platyceras uncum*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 516, pl. 17, fig. 1.
Keokuk L. S.: Nauvoo, Illinois.
1882. *Platyceras acutirostris*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 67, pl. 8, figs. 13-15.
St. Louis Group: Spergen Hill, Paynter's Hill, Ellettsville, Bloomington, and Crawfordsville, Indiana; Warsaw, Illinois; Tuscumbia, Alabama.
1883. *Platyceras acutirostris*. Hall, 12th Rep. Geol. Surv. Ind., p. 370, pl. 31, figs. 13-15.
St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.
1886. *Capulus acutirostris*. Claypole, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 246.
Lower Coal Measures: Wilkesbarre, Pennsylvania.
1890. *Capulus acutirostris*. Keyes, Am. Geol., vol. 6, p. 9.
1890. *Capulus acutirostris*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 170.
Keokuk Group: Warsaw and Nauvoo, Illinois.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana; Tuscumbia, Alabama.
1892. *Orthonychia acutirostre*. Keyes, Am. Geol., vol. 10, p. 276.
1894. *Orthonychia acutirostre*. Keyes, Mo. Geol. Surv., vol. 5, p. 190, pl. 54, figs. 2a-c.
Keokuk L. S. and Shale: Warsaw and Nauvoo, Illinois.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana; Tuscumbia, Alabama.
1897. *Capulus acutirostris*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 268.
Batesville, S. S.: Batesville, Arkansas.

***Orthonychia boonvillense* Miller.**

1891. *Platyceras boonvillense*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 82, pl. 14, figs. 15, 16.
Keokuk Group: Boonville, Missouri.
1892. *Platyceras boonvillense*. Miller, 17th Rep. Geol. Surv. Ind., p. 692, pl. 14, figs. 15, 16.
Keokuk Group: Boonville, Missouri.
1894. *Orthonychia boonvillense*. Keyes, Mo. Geol. Surv., vol. 5, p. 189.
Keokuk L. S.: Boonville, Missouri.

***Orthonychia chesterense* Meek and Worthen.**

1866. *Platyceras (Orthonychia) chesterense*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 265.
Chester Group: Pope County, and Chester, Illinois.

Orthonychia chesterense Meek and Worthen—Continued.

1898. *Platyceras chesterense*. Keyes, Proc. Am. Phil. Soc., vol. 25, p. 242, pl., figs. 4, 5.
 1890. *Capulus chesterensis*. Keyes, Am. Geol., vol. 6, p. 9.
 1890. *Capulus chesterensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 176, pl. 2, figs. 13a-d.
 Chester Group: Chester, Illinois; Pope County, Illinois; Pulaski County, Kentucky.
 1892. *Orthonychia chesterense*. Keyes, Am. Geol., vol. 10, p. 276.
 1894. *Orthonychia chesterense*. Keyes, Mo. Geol. Surv., vol. 5, p. 191, pl. 54, figs. 1a-d.
 Kaskaskia L. S.: Ste. Genevieve, Missouri.

Orthonychia cornuforme Winchell.

1863. *Platyceras cornuforme*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 18.
 Yellow S. S.: Burlington, Iowa.
 1889. *Platyceras cornuforme*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 294.
 Kinderhook Group: Burlington, Iowa.
 1890. *Capulus cornuforme*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 164, pl. 2, fig. 5.
 Kinderhook Beds: Burlington, Iowa; Lodi, Ohio.
 1892. *Orthonychia cornuforme*. Keyes, Am. Geol., vol. 10, p. 276.

Orthonychia cyrtolites McChesney.

1860. *Platyceras cyrtolites*. McChesney, Desc. New Pal. Foss., p. 71.
 Burlington L. S.: Calhoun County, Illinois.
 1889. *Platyceras cyrtolites*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 288.
 Burlington L. S.: Burlington, Iowa.
 1890. *Capulus cyrtolites*. Keyes, Am. Geol., vol. 6, p. 9.
 1890. *Capulus cyrtolites*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 167, pl. 2, fig. 2.
 Burlington L. S.: Burlington, Iowa; Calhoun County, Illinois.
 1892. *Orthonychia cyrtolites*. Keyes, Am. Geol., vol. 10, p. 276.
 1894. *Orthonychia cyrtolites*. Keyes, Mo. Geol. Surv., vol. 5, p. 188, pl. 53, fig. 15.
 Burlington L. S.: Hannibal, Missouri.

Orthonychia formosum Keyes.

1888. *Platyceras formosum*. Keyes, Proc. Am. Phil. Soc., vol. 25, p. 242, pl., figs. 8, 9.
 Kinderhook Group: Marshall County, Iowa.
 1890. *Capulus formosus*. Keyes, Am. Geol., vol. 6, p. 9.
 1890. *Capulus formosus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 164, pl. 2, fig. 8.
 Kinderhook Beds: Marshall County, Iowa.
 1892. *Orthonychia formosum*. Keyes, Am. Geol., vol. 10, p. 276.
 1894. *Orthonychia formosum*. Keyes, Mo. Geol. Surv., vol. 5, p. 189, pl. 53, fig. 2.
 Kinderhook Group: Marshall County, Iowa.
 Burlington L. S.: Louisiana, Missouri.

ORTHOTHETES Fischer de Waldheim, 1830.**Orthothetes crenistria** Phillips.

1863. *Streptorhynchus crenistria*. Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 173, pl. 9, fig. 19.
 Carboniferous: Shubenacadie, Nova Scotia.
 1865. *Streptorhynchus umbraculum?* Winchell, Proc. Acad. Nat. Sci. Phil., p. 117.
 Marshall Group: Warren, Trumbull County, Ohio.
 Oolitic L. S.: Burlington, Iowa.
 1868. *Streptorhynchus crenistria*. Dawson, Acad. Geol., p. 296, fig. 96.
 Carboniferous L. S.: East River, Pictou, Nova Scotia.
 1870. *Hemipronites umbraculum?* Winchell, Proc. Am. Phil. Soc., vol. 11, p. 251.
 Waverly Group: Newark, Sciotoville, and Rockville, Ohio; near Shafers, Pennsylvania.

Orthothetes crenistria Phillips—Continued.

1875. *Hemipronites crenistria*. Meek, Pal. Ohio, vol. 2, p. 279, pl. 10, figs. 5a-d.
Waverly Group: Medina County, Ohio.
1877. *Hemipronites crenistria*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 62, pl. 7, fig. 2.
Carboniferous: Fossil Hill, White Pine District; White Pine County, 25 miles northeast of Hamilton; and Railroad Canyon, Diamond Mountains, Nevada.
1878. *Streptorhynchus crenistria*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 632.
Carboniferous: Feilden Isthmus, latitude 82° 43'.
1888. *Hemipronites crenistria*. Herrick, Bull. Den. Univ., vol. 3, p. 37; pl. 3, fig. 39; pl. 5, fig. 14; pl. 6, figs. 8, 9; pl. 9, fig. 21.
Waverly Group: Licking County, Ohio.
1888. *Hemipronites crenistria*. Herrick, Bull. Den. Univ., vol. 4, p. 24, pl. 2, fig. 1.
Waverly Group: Moot's Run, Licking County, and Sciotoville, Ohio.
1892. *Orthothetes crenistria*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 11A, fig. 15.
Waverly Group: Sciotoville, Ohio.
1895. *Hemipronites crenistria*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 15, fig. 1; pl. 21, fig. 14.
Cuyahoga Shale: Sciotoville, Ohio.
Kinderhook: Granville, Ohio.

Orthothetes desideratus Hall and Clarke.

1883. *Streptorhynchus* sp. ? Hall, Rep. N. Y. State Geol. for 1882, pl. 8 (11A) 42, figs. 26, 27.
Waverly Group: Ohio.
1892. *Orthothetes desideratus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 345, pl. 9A, figs. 26, 27.
Waverly Group: Medina County, Ohio.
1897. *Orthothetes desideratus*. Hall, 14th Rep. N. Y. State Geol., p. 345, pl. 5, figs. 1, 2.
Waverly Group: Medina County, Ohio.

Orthothetes inæqualis Hall.

1868. *Orthis inæqualis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 490, pl. 2, figs. 6a-c.
Chemung Group: Burlington, Iowa.
1865. *Streptorhynchus inæqualis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 117.
Marshall Group: Weymouth, Medina County, Ohio, 80 feet below conglomerate.
1870. *Hemipronites inæqualis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 251.
Waverly Group: Newark and Granville, Ohio; near Shafer's, Pennsylvania.
1877. *Streptorhynchus equivalvis*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., p. 252, pl. 4, figs. 1, 2.
Waverly Group: Ogden and Logan Canyons, Utah.
1883. *Streptorhynchus æquivalvis*. Hall, Rep. N. Y. State Geol. for 1882, pl. (11A) 42, figs. 20-23.
Waverly Group: Burlington, Iowa.
1892. *Orthothetes inæqualis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 9A, figs. 20-23.
Kinderhook Group: Burlington, Iowa.

Orthothetes inflatus White and Whitfield.

1862. *Streptorhynchus inflatus*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 293.
Chemung Group: Burlington, Iowa.

Orthothetes inflatus White and Whitfield—Continued.

1877. *Streptorhynchus inflatus*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 252, pl. 4, fig. 3.
Waverly Group: Dry Canyon, Oquirrh Mountains, Utah.
1883. *Streptorhynchus inflatus*. Hall, Rep. N. Y. State Geol. for 1882, pl. (11A) 42, figs. 24, 25.
1892. *Orthothetes inflatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 9A, figs. 24, 25.
Kinderhook Group: Burlington, Iowa.

Orthothetes lens White.

1862. *Streptorhynchus lens*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 28.
Chemung Group: Burlington, Iowa; Clarkesville, Missouri; Hamburg, Illinois.
1865. *Streptorhynchus lens?* Winchell, Proc. Acad. Nat. Sci. Phil., p. 117.
Marshall Group: Weymouth, Medina County, Ohio, 80 feet below conglomerate.
1892. *Orthothetes lens*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 16, figs. 12–16.
Chouteau L. S.: Louisiana, Missouri.
1892. *Orthothetes lens*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 11A, figs. 16–22.
Chouteau L. S.: Louisiana, Missouri, and Pike County, Missouri.
1894. *Streptorhynchus lens*. Keyes, Mo. Geol. Surv., vol. 5, p. 67, pl. 39, figs. 2a, b.
Louisiana L. S.: Louisiana and Clarkesville, Missouri.

Orthothetes umbraculum Schlotheim.

1856. *Orthis umbraculum*. Hall, Trans. Albany Inst., vol. 4, p. 12.
St. Louis L. S.: Spergen Hill, Indiana.
1883. *Streptorhynchus (Orthis) Umbraculum*. Hall, 12th Rep. Geol. Surv. Ind., p. 325.
St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.

Orthothetes (species undetermined).

1865. *Streptorhynchus* sp. ? Winchell, Proc. Acad. Nat. Sci. Phil., p. 117.
Marshall Group: Ashland, Ashland County, Ohio.
1888. *Hemipronites* young individual. Herrick, Bull. Den. Univ., vol. 4, pl. 2, fig. 5.
Waverly Group: Moot's Run, Licking County, Ohio.
1888. *Hemipronites*. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 25.
Waverly Group: Cuyahoga Falls, Ohio.
1895. *Hemipronites*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 15, fig. 5.
Waverly Group: Moot's Run, Licking County, Ohio.

ORYCTOBLATTINA Scudder, 1885.**Oryctoblattina laqueata** Scudder.

1895. *Oryctoblattina laqueata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 133, pl. 11, fig. 6.
Upper Coal Measures: Kansas City, Missouri.

Oryctoblattina occidua Scudder.

1885. *Oryctoblattina occidua*. Scudder, Proc. Acad. Nat. Sci. Phil., p. 37.
Carboniferous: Mazon Creek, Illinois.
1890. *Oryctoblattina occidua*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 414, pl. 32, fig. 3.
Carboniferous: Mazon Creek, Illinois.
1890. *Oryctoblattina occidua*. Scudder, Foss. Insc. N. A., vol. 1, p. 390, pl. 24, fig. 3.
Carboniferous: Mazon Creek, Illinois.
1895. *Oryctoblattina occidua*. Scudder, Bull. U. S. Geol. Surv., No. 124, p. 133.
Lower Coal measures: Mazon Creek, Illinois.

OSTREA Linnaeus, 1758. .

Ostrea patercula Winchell.

1865. *Ostrea patercula*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 124.
Buff S. S. at base of Burlington L. S.: Burlington, Iowa.
1884. *Ostrea patercula*. White, 4th Ann. Rep. U. S. Geol. Surv., p. 288, pl. 34,
figs. 1, 2.
Kinderhook Group: Burlington, Iowa.

PALÆACIS Edwards and Haime, 1860.

Palæacis cavernosa Miller.

1891. *Palæacis cavernosa*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 4,
pl. 1, figs. 5, 6.
Knobstone Group: Jackson County, Indiana.
1892. *Palæacis cavernosa*. Miller, 17th Rep. Geol. Surv. Ind., p. 614, pl. 1, figs. 5, 6.
Knobstone Group: Jackson County, Indiana.

Palæacis compressus Meek and Worthen.

1860. *Sphenopoterium compressum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 448.
1866. *Sphenopoterium compressum*. Meek and Worthen, Geol. Surv. Ill., vol. 2,
p. 234, pl. 17, figs. 1a-c.
Keokuk L. S.: Nauvoo, Illinois.

Palæacis cuneatus. See *Palæacis cuneiformis*.**Palæacis cuneiformis** Milne-Edwards.

1860. *Palæacis cuneiformis*. Milne-Edwards, Hist. Nat. Corall., vol. 3, p. 171,
pl. El, figs. 2a-d.
Carboniferous: Spergen Hill, Indiana.
1860. *Sphenopoterium cuneatum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 448.
Warsaw L. S.: Spergen Hill, Indiana.
1866. *Sphenopoterium cuneatum*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 262,
pl. 19, figs. 1a-d.
St. Louis Group: Spurgen Hill, Indiana.
1882. *Palæacis cuneatus*. White, 11th Rep. Geol. Surv. Ind., p. 369, pl. 41, figs. 8, 9.
St. Louis Group: Spergen Hill, Indiana.

Palæacis enormis Meek and Worthen.

1860. *Sphenopoterium enorme*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 448.
Goniatite Beds: Rockford, Indiana.
1866. *Sphenopoterium enorme*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 146,
pl. 14, figs. 1a, b.
Goniatite L. S.: Rockford, Indiana.
Kinderhook Group: Clarksville, Missouri.
1894. *Palæacis enormis*. Keyes, Mo. Geol. Surv., vol. 4, p. 118.
Kinderhook Group: Clarksville and Louisiana, Missouri.

Palæacis enormis var. *depressus* Meek and Worthen.

1866. *Sphenopoterium enorme* var. *depressum*. Meek and Worthen, Geol. Surv. Ill.,
vol. 2, p. 146, pl. 14, figs. 2a, b.
Kinderhook Group: Salt Lick Point, Monroe County, Illinois.

Palæacis obtusus Meek and Worthen.

1860. *Sphenopoterium obtusum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 448.

Palæacis obtusus Meek and Worthen—Continued.

1866. *Sphenopoterium obtusum*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 233, pl. 17, figs. 2a-e.
 Keokuk L. S.: Nauvoo, Illinois.
 1894. *Palæacis obtusa*. Keyes, Mo. Geol. Surv., vol. 4, p. 118, pl. 14, figs. 1a, b.
 Keokuk L. S.: Clark County, Missouri.

PALÆASTER Hall, 1852.**Palæaster crawfordsvillensis** Miller.

1880. *Palæaster crawfordsvillensis*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 256, pl. 15, fig. 3.
 Keokuk Group: Crawfordsville, Indiana.

(PALÆASTERINA McCoy, 1851.)

Palæasterina fimbriata. See *Schoenaster fimbriatus*.

(PALÆCHINUS McCoy, 1844.)

Palæchinus burlingtonensis. See *Rhæchinus burlingtonensis*.

Palæchinus gracilis. See *Rhæchinus gracilis*.

PALÆOCAMPA Meek and Worthen, 1865.**Palæocampa anthrax** Meek and Worthen.

1865. *Palæocampa anthrax*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 52.
 Coal Measures: Morris, Illinois.
 1866. *Palæocampa anthrax*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 410, pl. 32, fig. 3.
 Lower Coal Measures: Morris, Grundy County, Illinois.
 1868. *Palæocampa*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 565.
 Carboniferous: Mazon Creek, Illinois.
 1884. *Palæocampa anthrax*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 293, pl. 26.
 Carboniferous: Mazon Creek, Illinois.
 1890. *Palæocampa anthrax*. Scudder, Foss. Insc. N. A., vol. 1, pp. 257, pl. 12, figs. 1-9.
 Carboniferous: Mazon Creek, Illinois.

PALÆOCARIS Meek and Worthen, 1865.**Palæocaris typus** Meek and Worthen.

1865. *Palæocaris typus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 49.
 Coal Measures: Morris, Illinois.
 1865. *Acanthotelson inæqualis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 48.
 Coal Measures: Morris, Illinois.
 1866. *Palæocaris typus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 405, pl. 32, figs. 5-5d.
 Lower Coal Measures: Morris, Grundy County, Illinois.
 1866. *Acanthotelson inæqualis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 403, pl. 32, figs. 7, 7a.
 Lower Coal Measures: Morris, Grundy County, Illinois.

Palæocaris typus Meek and Worthen—Continued.

1868. *Palæocaris typus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 552, figs. A, B.
Coal Measures: Mazon Creek, Grundy County, Illinois.
1880. *Palæocaris typus*. Brocchi, Bull. Soc. Geol. France (3), vol. 8, p. 9, pl. 1, figs. 8-10.
Calcaire carbonifère: Illinois.
1884. *Palæocaris typus*. White, 13th Rep. Geol. Surv. Ind., p. 179, pl. 38, figs. 1-3.
Coal Measures, Grundy County, Illinois.
1885. *Palæocaris typus*. Packard, Am. Nat., vol. 19, p. 790.
1886. *Palæocaris typus*. Packard, Mem. Nat. Acad. Sci., vol. 3, pt. 2, p. 129, pl. 3, figs. 1-4; pl. 7, figs. 1, 2.
Carboniferous: Mazon Creek, Illinois.
1889. *Palæocaris typus*. Packard, Proc. Bost. Soc. Nat. Hist., vol. 24, p. 213.
Coal Measures: Mazon Creek, Illinois.

PALÆONEILO Hall, 1870.**Palæoneilo attenuata** Hall.

- *1870. *Palæoneilo attenuata*. Hall, Prelim. Not. Lam. Shells, 2, p. 12.
Waverly S. S.: Granville and Newark, Ohio.
1884. *Palæoneilo attenuata*. Hall, Rep. N. Y. State Geol. for 1881, pl. 7, fig. 22.
Waverly Group: Ohio.
1885. *Palæoneilo attenuata*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 346, pl. 50, figs. 34-39.
Waverly S. S.: Granville and Newark, Ohio.
1888. *Palæoneilo attenuata*. Herrick, Bull. Den. Univ., vol. 3, p. 82, pl. 4, fig. 3; pl. 9, fig. 23.
Waverly Group: Licking County, Ohio.

Palæoneilo bedfordensis Meek.

1875. *Palæoneilo Bedfordensis*. Meek, Pal. Ohio, vol. 2, p. 298, pl. 15, figs. 3a-c.
Bedford Shale: Bedford, Ohio.
1886. *Palæoneilo bedfordensis*. Clappole, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, pp. 242, 248.
Lower Coal Measures: Wilkesbarre, Pennsylvania.
1888. *Palæoneilo bedfordensis*. Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 8.
Bedford Shale: Central College, Ohio.
1889. *Palæoneilo bedfordensis*. Herrick, Am. Geol., vol. 3, pl. 4, fig. 8.
Bedford Shale: Ohio.
1895. *Palæoneilo bedfordensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 8.
Shale above Berea Grit: Ohio.

Palæoneilo concentrica var. Herrick.

1888. *Palæoneilo concentrica* var. Herrick, Bull. Den. Univ., vol. 3, pl. 7, fig. 37.
Waverly Group: Licking County, Ohio.

Palæoneilo consimilis Herrick.

1888. *Palæoneilo consimilis*. Herrick, Bull. Den. Univ., vol. 4, p. 43, pl. 4, fig. 14.
Waverly Group: Near Harlem, Delaware County, Ohio.
1889. *Palæoneilo consimilis*. Herrick, Am. Geol., vol. 3, pl. 2, fig. 14.
1895. *Palæoneilo consimilis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 14.
Base of Cuyahoga Shale: Harlem, Delaware County, Ohio.

Palæoneilo curta Herrick.

1888. *Palæoneilo (Nucula?) curta*. Herrick, Bull. Den. Univ., vol. 4, p. 44, pl. 4, fig. 4.
Middle Waverly: Ohio.
1889. *Palæoneilo curta*. Herrick, Am. Geol., vol. 3, pl. 2, fig. 4.
1895. *Palæoneilo curta*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 4.
Kinderhook Freestone: Granville, Ohio.

Palæoneilo elliptica Herrick.

1888. *Palæoneilo ellipticus*. Herrick, Bull. Den. Univ., vol. 3, p. 80, pl. 9, figs. 13, 15.

Waverly Group: Licking County, Ohio.

Palæoneilo elliptica var. allorismiformis Herrick.

1888. *Palæoneilo ellipticus* var. *allorismiformis*. Herrick, Bull. Den. Univ., vol. 3, p. 81, pl. 4, fig. 12, lower figure.

Waverly Group: Licking County, Ohio.

Palæoneilo elliptica var. elegantula Herrick.

1888. *Palæoneilo ellipticus* var. *elegantula*. Herrick, Bull. Den. Univ., vol. 3, p. 81.

Waverly Group: Licking County, Ohio.

Palæoneilo elliptica var. plicatella Herrick.

1888. *Palæoneilo ellipticus* var. *plicatella*. Herrick, Bull. Den. Univ., vol. 3, p. 81, pl. 4, fig. 12, upper figure.

Waverly Group: Licking County, Ohio.

Palæoneilo ignota Herrick.

1888. *Palæoneilo ignota*. Herrick, Bull. Den. Univ., vol. 4, p. 44, pl. 4, fig. 15.

Waverly Group: Moot's Run, Licking County, Ohio.

1889. *Palæoneilo ignota*. Herrick, Am. Geol., vol. 3, pl. 2, fig. 15.

1895. *Palæoneilo ignota*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 15.

Cuyahoga Shale: Moot's Run, Ohio.

Palæoneilo marshallensis Winchell.

1862. *Sanguinolites Marshallensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 415.

Marshall Group: Marshall, Michigan.

1870. *Sanguinolites Marshallensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 266.

Waverly Group: Sciotoville, Ohio.

1883. *Palæoneilo truncata*. Hall, Pal. N. Y., vol. 5, pt. 1, Plates and Expl., pl. 50, figs. 40, 41.

Waverly Group: Bagdad, Ohio.

1885. *Palæoneilo truncata*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 347, pl. 50, figs. 40, 41.

Waverly S. S.: Richfield and Medina, Ohio.

1888. *Sanguinolites marshallensis*?. Herrick, Bull. Den. Univ., vol. 3, p. 67, pl. 5, fig. 11; pl. 7, fig. 10.

Waverly Group: Licking County, Ohio.

1888. *Palæoneilo* ? *marshallensis*. Herrick, Bull. Den. Univ., vol. 4, pl. 4, fig. 18.

Waverly Group: Rushville, Ohio.

1889. *Palæoneilo* ? *marshallensis*. Herrick, Am. Geol., vol. 3, pl. 2, fig. 18.

1895. *Palæoneilo* (?) *marshallensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 18; pl. 21, fig. 11.

Upper Waverly: Ohio.

Kinderhook: Granville, Ohio.

Palæoneilo parallela Hall and Whitfield.

1873. *Palæoneilo parallela*. Hall and Whitfield, 23d Rep. N. Y. State Cab. Nat. Hist., p. 241.

Waverly S. S.: Newark and Bagdad, Ohio.

Palæoneilo plicatella Herrick.

1888. *Palæoneilo plicatella*. Herrick, Bull. Den. Univ., vol. 3, pl. 4, fig. 9.

Waverly Group: Licking County, Ohio.

Palæoneilo sulcatina Conrad.

1842. *Nuculites sulcatina*. Conrad, Jour. Acad. Nat. Sci. Phil. (1), vol. 8, p. 250, pl. 15, fig. 10.

Carboniferous: Hillsdale County, Michigan.

Palæoneilo sulcatina Conrad—Continued.

1862. *Leda Barrisi*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 298.
Chemung Group: Burlington, Iowa.
1862. *Nucula Hubbardi*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 417.
Marshall Group: Marshall, Battle Creek, and Moscow, Michigan.
1862. *Nucula Hubbardi* var. *prolata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 418.
Marshall Group: Moscow and Battle Creek, Michigan.
1865. *Ctenodonta Hubbardi*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 128.
Marshall Group: Napoleon Cut, Jackson County, Michigan.
1885. *Palæoneilo sulcatina*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 347, pl. 50, figs. 42-46.
Waverly S. S.: Richfield and Newark, Ohio; Battle Creek and Hillsdale, Michigan.
1888. *Palæoneilo sulcatina*. Herrick, Bull. Den. Univ., vol. 4, p. 44, pl. 4, fig. 17.
Waverly Group: Union, Licking County, Ohio.
1889. *Palæoneilo sulcatina*. Herrick, Am. Geol., vol. 3, pl. 2, fig. 17.
1895. *Palæoneilo sulcatina*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 17.
Cuyahoga Shale: Ohio.

Palæoneilo truncata. See *Palæoneilo marshallensis*.

Palæoneilo (species undetermined).

1888. *Palæoneilo* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 7, fig. 8.
Waverly Group: Licking County, Ohio.
1888. *Sanguinolites*, resembling *marshallensis*. Herrick, Bull. Den. Univ., vol. 3, pl. 12, fig. 35.
Waverly Group: Licking County, Ohio.
1888. *Palæoneilo* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 2.
Waverly Group: Cuyahoga Falls, Ohio.
1888. *Palæoneilo* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 16.
Waverly Group: Cuyahoga Falls, Ohio.

PALÆOPALÆMON Whitfield, 1880.**Palæopalæmon newberryi Whitfield.**

1880. *Palæopalæmon Newberryi*. Whitfield, Am. Jour. Sci. (3), p. 41.
Erie Shale: Le Roy, Lake County, Ohio.
1888. *Palæopalæmon Newberryi*. Hall and Clarke, Pal. N. Y., vol. 7, p. 203, pl. 30, figs. 20-23.
Erie Shales: Leroy, Lake County, Ohio.
1891. *Palæopalæmon Newberryi*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 571, pl. 12, figs. 19-21.
Erie Shale: Ohio.
1892. *Palæopalæmon newberryi*. Whitfield, Am. Geol., vol. 9, p. 237.
Kinderhook Group: Kaskade, 3 miles west of Burlington, Iowa.
1895. *Palæopalæmon Newberryi*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 461, pl. 8, figs. 19-21.
Erie Shale: Ohio.

PALÆOSOLEN Hall, 1885.**Palæosolen occidentalis Miller and Gurley.**

1896. *Palæosolen occidentalis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 16, pl. 2, figs. 13, 14.
Chouteau L. S.: Near Sedalia, Missouri.

PALENARTHURUS Scudder, 1890.

Palenarthrus impressus Scudder.

1890. *Palenarthrus impressus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 422, pl. 38, fig. 4.

Carboniferous: Mazon Creek, Illinois.

1890. *Palenarthrus impressus*. Scudder, Foss. Insc. N. A., vol. 1, p. 398, pl. 30, fig. 4.

Carboniferous: Mazon Creek, Illinois.

(PANOPÆA Menard, 1807.)

Panopæa cooperi. See *Chænomya cooperi*.

PAOLIA Smith, 1871.

Paolia gurleyi Scudder.

1885. *Paolia Gurleyi*. Scudder, Proc. Am. Acad. Arts and Sci., vol. 20, p. 173.

Carboniferous: Orange County, Indiana.

Paolia lacoana Scudder.

1885. *Paolia Lacoana*. Scudder, Proc. Am. Acad. Arts and Sci., vol. 20, p. 173.

Carboniferous: Pittston, Pennsylvania.

Paolia superba Scudder.

1885. *Paolia superba*. Scudder, Proc. Am. Acad. Arts and Sci., vol. 20, p. 173.

Carboniferous: Mazon Creek, Illinois.

Paolia vetusta Smith.

1871. *Paolia vetusta*. Smith, Am. Jour. Sci. (3), vol. 1, p. 44, fig.

Carboniferous: Near Paoli, Orange County, Indiana.

1885. *Paolia vetusta*. Scudder, Proc. Am. Acad. Arts and Sci., vol. 20, p. 173.

Carboniferous: Paoli, Indiana.

PARALEGOCERAS Hyatt, 1883.

Paralegoceras iowense Meek and Worthen.

1860. *Goniatites Iowensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 471.

Coal Measures: Alpine, Iowa.

1866. *Goniatites iowensis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 392, pl. 30, figs. 3a-c.

Coal Measures: Alpine, Iowa.

1883. *Paralegoceras Iowense*. Hyatt, Proc. Bost. Soc. Nat. Hist., vol. 22, p. 327.

1887. *Goniatites?* cf. *G. iowensis*. Herrick, Bull. Den. Univ., vol. 2, p. 146, pl. 14, fig. 11.

Coal Measures: Flint Ridge, Ohio.

1893. *Paralegoceras iowense*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 474.

Carboniferous: Near Bend, San Saba County, Texas.

1897. *Paralegoceras iowense*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 53, pl. 19, figs. 1, 3.

Lower Coal Measures: Conway County, Arkansas.

PARALOGUS Scudder, 1893.

Paralogus æschnoides Scudder.

1893. *Paralogus æschnoides*. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 21, pl. 1, figs. a, b.

Carboniferous: Silver Spring, East Providence, Rhode Island.

PARARCA Hall, 1885.

Pararca erecta Hall.

1885. *Pararca erecta*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 432, pl. 70, fig. 16; pl. 94, figs. 20, 21.

Waverly S. S.: Warren and Meadville, Pennsylvania.

Pararca neglecta Hall.

1885. *Pararca neglecta*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 432, pl. 70, fig. 13.

Waverly, S. S.: Meadville, Pennsylvania.

PARISOOCRINUS Wachsmuth and Springer, 1879.

Parisocrinus intermedius Hall.

1858. *Cyathocrinus intermedius*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 627, pl. 18, fig. 10.

Keokuk L. S.: Warsaw, Illinois.

1894. *Parisocrinus intermedius*. Keyes, Mo. Geol. Surv., vol. 4, p. 207.

Keokuk L. S.: Warsaw, Illinois.

Parisocrinus perplexus Meek and Worthen.

1869. *Poteriocrinites ? perplexus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 138.

Lower Burlington L. S.: Burlington, Iowa.

1873. *Poteriocrinites ? perplexus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 405, pl. 2, fig. 12.

Burlington L. S.: Burlington, Iowa.

Parisocrinus salignoides White.

1862. *Poteriocrinus salignoides*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 10.

Upper Burlington L. S.: Burlington, Iowa.

Parisocrinus tenuibrachiatatus Meek and Worthen.

1861. *Poteriocrinus tenuibrachiatatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 138.

Burlington L. S.: Burlington, Iowa.

1868. *Poteriocrinus tenuibrachiatatus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 484, pl. 16, fig. 1.

Burlington Group: Burlington, Iowa.

PAROMYLACRIS Scudder, 1885.

Paromylacris ampla Scudder.

1890. *Paromylacris ampla*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 408, pl. 31, fig. 7.

Carboniferous: Mazon Creek, Illinois.

1890. *Paromylacris ampla*. Scudder, Foss. Insc. N. A., vol. 1, p. 384, pl. 23, fig. 7.

Carboniferous: Mazon Creek, Illinois.

1895. *Paromylacris ampla*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 51, pl. 3, fig. 4.

Lower Coal Measures: Braidwood, Illinois.

Paromylacris clintoniana Scudder.

1895. *Paromylacris clintoniana*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 53, pl. 3, fig. 6.

Lower Coal Measures: Clinton, Missouri.

Paromylacris ? pluteus Scudder.

1895. *Paromylacris ? pluteus*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 54, pl. 3, fig. 2.

Coal Measures: Butter Mine, Pittston, Pennsylvania.

Paromylacris rotunda Scudder.

1885. *Paromylacris rotundum*. Scudder, Proc. Acad. Nat. Sci. Phil., p. 35.
Carboniferous: Mazon Creek, Illinois.
1890. *Paromylacris rotunda*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 406,
pl. 32, figs. 1, 2.
Carboniferous: Mazon Creek, Illinois.
1890. *Paromylacris rotunda*. Scudder, Foss. Insc. N. A., vol. 1, p. 382, pl. 24,
figs. 1, 2.
Carboniferous: Mazon Creek, Illinois.
1895. *Paromylacris rotunda*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 51.
Lower Coal Measures: Mazon Creek, Illinois.

Paromylacris triangularis Scudder.

1895. *Paromylacris triangularis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 52,
pl. 3, fig. 3.
Lower Coal Measures: Mazon Creek, Illinois.

(PATELLA Linnaeus, 1758.)

Patella levettei. See *Lepetopsis levettei*.

(PECTEN Mueller, 1776.)

- Pecten acutialatus*. See *Aviculopecten acutialatus*.
- Pecten armigerus*. See *Aviculopecten armigerus*.
- Pecten aviculatus*. See *Pernopecten aviculatus*.
- Pecten broadheadi*. See *Aviculopecten carboniferus*.
- Pecten carboniferus*. See *Aviculopecten carboniferus*.
- Pecten cleavelandicus*. See *Aviculopecten occidentalis*.
- Pecten coloradensis*. See *Aviculopecten coloradoensis*.
- Pecten halli*. See *Aviculopecten halli*.
- Pecten hawni*. See *Aviculopecten carboniferus*.
- Pecten missouriensis* Shumard. See *Aviculopecten missouriensis*.
- Pecten missouriensis* Geinitz. See *Aviculopecten occidentalis*.
- Pecten neglectus*. See *Euchondria neglecta*.
- Pecten occidentalis*. See *Aviculopecten occidentalis*.
- Pecten providencesis*. See *Aviculopecten providencesis*.
- Pecten ringens*. See *Aviculopecten ringens*.
- Pecten tenuilineatus*. See *Streblopteria tenuilineata*.
- Pecten utahensis*. See *Aviculopecten utahensis*.

(PENTAMERUS Sowerby, 1812.)

- Pentamerus lenticularis*. See *Camarophorella lenticularis*.
- Pentamerus salinensis*. See *Conchidium salinensis*.

PENTREMITES Say, 1820.

- Pentremites abbreviatus*. See *Pentremites godoni* var. *abbreviatus*.

Pentremites angularis Lyon.

1860. *Pentremites angularis*. Lyon, Trans. St. Louis Acad. Sci., vol. 1, p. 631, pl. 20, figs. 3a-c.

Millstone Grit: Falls of Rough Creek, Breckinridge County, Kentucky.

Pentremites basilaris Hambach.

1880. *Pentremites basilaris*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 159, pl. B, fig. 9.

Kaskaskia L. S.: Evansville and Chester, Illinois.

Pentremites bipyramidalis. See *Metablastus bipyramidalis*.**Pentremites bradleyi** Meek.

1873. *Pentremites Bradleyi*. Meek, U. S. Geol. Surv. Mont., Idaho, Wyo., and Utah, p. 470.

Carboniferous: Divide between Ross Fork and Lincoln Valley, Montana.

Pentremites broadheadi Hambach.

1880. *Pentremites Broadheadi*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 159, pl. B, fig. 6.

Kaskaskia L. S.: Evansville, Illinois.

Pentremites burlingtonensis Meek and Worthen.

1870. *Pentremites Burlingtonensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 33.

Upper Burlington L. S.: Burlington, Iowa.

1873. *Pentremites Burlingtonensis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 461, pl. 8, fig. 7.

Burlington L. S.: Burlington, Iowa.

Pentremites calycinus Lyon.

1860. *Pentremites calycinus*. Lyon, Trans. St. Louis Acad. Soc., vol. 1, p. 628, pl. 20, figs. 1a-c.

Millstone Grit: Near Eskridge's Ferry, Grayson County, Kentucky.

Pentremites cervinus Hall.

1858. *Pentremites cervinus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 690, pl. 25, figs. 11a, b.

Kaskaskia L. S.: Chester, Illinois; near Huntsville, Alabama.

Pentremites cherokeus Hall.

1858. *Pentremites cherokeus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 691, pl. 25, figs. 12a, b.

Kaskaskia L. S.: Chester and Prairie du Long, Illinois; near Huntsville, Alabama; Cherokee County, Tennessee.

Pentremites chesterensis Hambach.

1880. *Pentremites Chesterensis*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 158, pl. B, fig. 8.

Kaskaskia L. S.: Randolph County and Chester, Illinois.

Pentremites clavatus Hambach.

1880. *Pentremites clavatus*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 157, pl. B, fig. 5.

Kaskaskia L. S.: Evansville, Illinois.

Pentremites conoideus Hall.

1856. *Pentremites conoideus*. Hall, Trans. Albany Inst., vol. 4, p. 5.

St. Louis L. S.: Spergen Hill and Bloomington, Indiana.

1858. *Pentremites conoideus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 655, pl. 22, figs. 8-10.

Warsaw L. S.: Spergen Hill and Bloomington, Indiana.

Pentremites conoideus Hall—Continued.

1858. *Pentremites conoideus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 243. Archimedes L. S.: Spergen Hill, Indiana.
1860. *Pentremites conoideus*. Hall, Supp., vol. 1, pt. 2, Geol. Rep. Ia., pl. 1, figs. 1a-d.
1881. *Pentremites conoideus*. White, 2d Ann. Rep. Dep. Stat. and Geol. Ind., p. 512, pl. 7, fig. 12.
Warsaw Group: Spergen Hill and Bloomington, Indiana.
1882. *Pentremites conoideus*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 44, pl. 9, fig. 32.
St. Louis Group: Spergen Hill, Bloomington, Ellettsville, and Paynter's Hill, Indiana; Alton, Illinois; Boonville, Missouri.
1883. *Pentremites conoideus*. Hall, 12th Rep. Geol. Surv. Ind., p. 323, pl. 32, fig. 32.
St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.
1886. *Pentremites conoideus*. Etheridge and Carpenter, Cat. Blast., p. 161, pl. 2, figs. 16-23; pl. 3, figs. 4-12; pl. 18, figs. 6-8.
St. Louis Group: Spergen Hill, Indiana.
1894. *Pentremites conoideus*. Keyes, Mo. Geol. Surv., vol. 4, p. 134, pl. 18, fig. 5.
Keokuk L. S.: Boonville, Missouri.

Pentremites cornutus. See *Heteroblastus cornutus*.

Pentremites curtus. See *Granatocrinus curtus*.

Pentremites decussatus Shumard.

1857. *Pentremites decussatus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 242, pl. 9, figs. 6a, b.
Carboniferous: Button-mould Knob, south of Louisville, Kentucky.

Pentremites elegans Lyon.

1858. *Pentremites elegans*. Lyon, Trans. St. Louis Acad. Sci., vol. 1, p. 632, pl. 20, figs. 4a-c.
Millstone Grit: Near Grayson Springs and Litchfield, Kentucky.
1891. *Pentremites elegans*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 577, pl. 13, fig. 4.
Maxville L. S.: Newtonville, Ohio.
1895. *Pentremites elegans*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 466, pl. 9, fig. 4.
Maxville L. S.: Newtonville, Ohio.

Pentremites elongatus Shumard.

1855. *Pentremites elongatus*. Shumard, Geol. Rep. Mo., p. 187, pl. B, fig. 4.
Encrinital L. S.: Clarkeville and near Columbia, Missouri.
1886. *Pentremites elongatus*. Etheridge and Carpenter, Cat. Blast., p. 161, pl. 1, figs. 4, 5; pl. 2, figs. 14, 15; pl. 18, fig. 4.
Upper Burlington L. S.: Burlington, Iowa.
1894. *Pentremites elongatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 133, pl. 18, fig. 4.
Upper Burlington L. S.: Palmyra, Helton, Hannibal, Louisiana, Columbia, Rocheport, Ashgrove, and Ste. Genevieve, Missouri.

Pentremites florealis. See *Pentremites godoni*.

Pentremites gemmiformis Hambach.

1884. *Pentremites gemmiformis*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 553, pl. D, fig. 5.
Kaskaskia L. S.: Randolph County, Illinois.

Pentremites globosus Troost.

1835. *Pentremites globosa*. Troost, Trans. Geol. Soc. Penn., vol. 1, pt. 2, p. 228.
Mount Sano, Alabama; Crab Orchard Mountain, Tennessee; Illinois.
1858. *Pentremites globosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 695, pl. 25, fig. 17.
Kaskaskia L. S.: Hardin County, Illinois.

Pentremites godoni DeFrance.

- *1819. *Encrina Godoni*. DeFrance, Dict. Sci. Nat., tome 14, p. 467.
- *1820. *Encrinites florealis*. Von Schlotheim, Petrefactenkunde, Bd. 2, p. 38.
- 1825. *Pentremites florealis*. Say, Jour. Acad. Nat. Sci. Phil. (1), vol. 4, p. 295.
Kentucky.
- 1835. *Pentremites florealis*. Troost, Trans. Geol. Soc. Penn., vol. 1, pt. 2, p. 229.
pl. 10, fig. 3.
Jasper, Sequache Valley, between Sparta and Crab Orchard; rare in L. S.
near Nashville, Tennessee; in several places on the base of the different
spurs of the Cumberland Mountains, Kentucky, between Springfield and
Nashville.
- 1848. *Pentremites globosa*. Christy, Letters on Geol., pl. 4, figs. 7, 8.
Carboniferous L. S.: Huntsville, Alabama.
- 1854. *Pentremites florealis*. Shumard, Marcy's Expl. Red River of Louis., p. 174.
Carboniferous: Washington and Crawford counties, Arkansas.
- 1858. *Pentremites godoni*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 692, pl. 25, figs. 13a, b.
Kaskaskia L. S.: Chester, Illinois; Huntsville, Alabama.
- 1881. *Pentremites godoni*. White, 2d Ann. Rep. Dep. Stat. and Geol. Ind., p. 511,
pl. 7, figs. 10, 11.
Chester Group: Dubois, Harrison, and Crawford counties, Indiana.
- 1886. *Pentremites Godoni*. Etheridge and Carpenter, Cat. Blast., p. 157, pl. 1,
fig. 11; pl. 2, figs. 1-13; pl. 12, figs. 16, 17; pl. 16, figs. 19, 22, 23.
Kaskaskia L. S.: Franklin County, Tennessee; Huntsville, Alabama; Ches-
ter, Illinois.
Subcarboniferous: Floyd County, Georgia; Leipzig, Pope County, Illinois;
Alleghany Mountains; Prairie du Long, Illinois.
- 1886. *Pentremites Godoni* var. *florealis*. Etheridge and Carpenter, Cat. Blast.,
p. 160, pl. 2, fig. 2.
Chester Group: Huntsville, Alabama.
- 1894. *Pentremites godoni*. Keyes, Mo. Geol. Surv., vol. 4, p. 136.
Kaskaskia L. S.: Ste. Mary, Missouri.
- 1896. *Pentremites florealis*. Harris, Bull. Am. Pal., vol. 1, No. 5, p. 353 (83).
Kentucky, and Huntsville, Alabama.

Pentremites godoni var. abbreviatus Hambach.

- 1880. *Pentremites abbreviatus*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 155,
pl. 3, fig. 3.
Kaskaskia L. S.: Evansville, Illinois.
- 1886. *Pentremites Godoni* var. *abbreviatus*. Etheridge and Carpenter, Cat. Blast.,
p. 160, pl. 2, fig. 4.
Chester Group: Chester, Illinois.

Pentremites godoni var. florealis. See Pentremites godoni.**Pentremites godona var. major Etheridge and Carpenter.**

- 1886. *Pentremites Godoni* var. *major*. Etheridge and Carpenter, Cat. Blast., p. 160,
pl. 2, fig. 1.
Kaskaskia L. S.: Franklin County, Tennessee.

Pentremites granulatus. See Granatocrinus granulatus.**Pentremites granulosus. See Schizoblastus granulosus.****Pentremites grosvenori. See Troostocrinus grosvenori.****Pentremites hemisphericus Hambach.**

- 1880. *Pentremites hemisphericus*. Hambach, Trans. St. Louis Acad. Sci., vol. 4,
p. 157, pl. B, fig. 7.
Kaskaskia L. S.: Chester and Evansville, Illinois.

Pentremites koninckanus Hall.

1856. *Pentremites koninckana*. Hall, Trans. Albany Inst., vol. 4, p. 4.
 St. Louis L. S.: Spergen Hill and Bloomington, Indiana; Alton, Illinois.
1858. *Pentremites koninckana*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 656, pl. 22, figs. 11a-c.
 Warsaw L. S.: Spergen Hill and Bloomington, Indiana; Alton, Illinois.
1860. *Pentremites koninckiana*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 1, figs. 2a-c.
1882. *Pentremites Koninckana*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 43, pl. 9, fig. 33.
 St. Louis Group: Spergen Hill and Bloomington, Indiana; Alton, Illinois.
1883. *Pentremites koninckana*. Hall, 12th Rep. Geol. Surv. Ind., p. 322, pl. 32, fig. 33.
 St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.
1894. *Pentremites koninckanus*. Keyes, Mo. Geol. Surv., vol. 4, p. 135.
 St. Louis L. S.: St. Louis, Missouri; Pella and Oskaloosa, Iowa.

Pentremites laterniformis Owen and Shumard.

1850. *Pentremites laterniformis*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 66, pl. 7, fig. 15.
 Carboniferous: Mill Creek, Randolph County, Illinois.
1852. *Pentremites laterniformis*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 592, tab. 5A, fig. 15.
 Carboniferous: Mill Creek, Randolph County, Illinois, about 7 miles from Chester.

Pentremites lineatus. See *Metablastus lineatus*.

Pentremites longicostalis Hall.

1860. *Pentremites longicostalis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 85.
 Warsaw L. S.: Warsaw, Illinois.

Pentremites melo. See *Cryptoblastus melo*.

Pentremites melo var. *projectus*. See *Cryptoblastus projectus*.

Pentremites missouriensis Swallow.

1860. *Pentremites Missouriensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 81.
 Archimedes L. S.: Missouri and Illinois.

Pentremites nodosus Hambach.

1880. *Pentremites nodosus*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 155, pl. B, fig. 2.
 Kaskaskia L. S.: Randolph County, Illinois.

Pentremites norwoodi. See *Granatocrinus norwoodi*.

Pentremites obesus Lyon.

1857. *Pentremites obesus*. Lyon, Rep. Ky. Geol. Surv., vol. 3, p. 469, pl. 2, figs. 1-1d.
 Lower calcareous beds of Millstone Grit: Crittenden County, Kentucky.
1858. *Pentremites obesus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 695, pl. 25, fig. 15.
 Kaskaskia L. S.: Southern Illinois and Kentucky.
1894. *Pentremites obesus*. Keyes, Mo. Geol. Surv., vol. 4, p. 135.
 Kaskaskia L. S.: Ste. Mary, Missouri.

Pentremites obliquatus. See *Tricelocrinus obliquatus*.

Pentremites potteri. See *Schizoblastus potteri*.

***Pentremites pyriformis* Say.**

1825. *Pentremite pyriformis*. Say, Jour. Acad. Nat. Sci., Phil. (1), vol. 4, p. 294. Kentucky.
1835. *Pentremites pyriformis*. Troost, Trans. Geol. Soc. Penn., vol. 1, pt. 2, p. 228, pl. 10, fig. 8.
Near Sparta, Tennessee; Mount Sano, Alabama; Kentucky, between Springfield and Nashville, Tennessee.
1848. *Pentremites pyriformis*. Christy, Letters on Geol., pl. 4, fig. 6.
Carboniferous L. S.: Huntsville, Alabama.
1858. *Pentremites pyriformis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 693, pl. 25, fig. 16.
Kaskaskia L. S.: Chester, Illinois; near Huntsville, Alabama.
1858. *Pentremites symmetricus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 694, pl. 25, fig. 14.
Kaskaskia L. S.: Kentucky.
1881. *Pentremites pyriformis*. White, 2d Ann. Rep. Dept. Stat. and Geol. Ind., p. 511, pl. 7, fig. 9.
Chester Group: Down Hill, Crawford County, Indiana.
1886. *Pentremites pyriformis*. Etheridge and Carpenter, Cat. Blast., p. 167, pl. 1, figs. 6, 7; pl. 2, figs. 24-30; pl. 12, figs. 13-15; pl. 18, fig. 3.
Chester Group: Chester and Prairie du Long, Illinois; Cumberland Mountains, Tennessee; Huntsville, Alabama; Alleghany Mountains.
1894. *Pentremites pyriformis*. Keyes, Mo. Geol. Surv., vol. 4, p. 135.
Kaskaskia L. S.: Ste. Mary, Missouri.
1896. *Pentremite pyriformis*. Harris, Bull. Am. Pal., vol. 1, No. 5, p. 352 (82).

***Pentremites robustus* Lyon.**

1880. *Pentremites robustus*. Lyon, Trans. St. Louis Acad. Sci., vol. 1, p. 629, pl. 20, fig. 2a-c.
Millstone Grit: Grayson County, Kentucky.

Pentremites roemeri. See *Schizoblastus roemeri*.

Pentremites sampsoni. See *Schizoblastus sampsoni*.

Pentremites sayi. See *Schizoblastus sayi*.

Pentremites sirius. See *Orophocrinus sirius*.

Pentremites stelliformis. See *Orophocrinus stelliformis*.

***Pentremites subconoides* Meek.**

1873. *Pentremites subconoides*. Meek, U. S. Geol. Surv. Mont., Idaho, Wyo., and Utah, p. 471.
Carboniferous: Divide between Ross Fork and Lincoln Valley, Montana.

***Pentremites subspinosus* Hambach.**

1880. *Pentremites subspinosus*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 154, pl. B, fig. 1.
Kaskaskia L. S.: Chester, Illinois.

***Pentremites sulcatus* Roemer.**

- *1851. *Pentatremites sulcatus*. Roemer, Archiv. fur Naturgesch., Jahrg. 17, Bd. 1, p. 354, taf. 6, figs. 10a-c.
1854. *Pentremites sulcatus*. Shumard, Marcy's Expl. Red River of Louis., p. 174.
Carboniferous: Washington County, Arkansas.
1886. *Pentremites sulcatus*. Etheridge and Carpenter, Cat. Blast., p. 165, pl. 1, figs. 8-10; pl. 2, fig. 31; pl. 16, fig. 20; pl. 18, fig. 5.
Chester Group: Chester, Illinois.
1894. *Pentremites sulcatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 135, pl. 18, figs. 6a, b.
Kaskaskia L. S.: Ste. Mary, Missouri.

Pentremites symmetricus. See *Pentremites pyriformis*.

Pentremites truncatus Conrad.

1843. *Pentremites truncata*. Conrad, Proc. Acad. Nat. Sci. Phil., p. 334.
Edwardsville, Madison County, Illinois.

Pentremites varsouviensis. See *Metablastus varsouviensis*.

Pentremites woodmani. See *Tricælocrinus woodmani*.

Pentremites wortheni. See *Metablastus wortheni*.

Pentremites (species undetermined).

1868. *Pentremites*. Rogers, Geol. Rep. Penn., vol. 2, p. 833, fig. 688.

PERIECHOCRINUS Austin, 1843.

Periechocrinus tenuidiscus Hall.

*1861. *Actinocrinus* (?) *tenuidiscus*. Hall, Desc. New Spec. Crin., p. 14.
Burlington L. S.

1897. (?) *Periechocrinus tenuidiscus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 531, pl. 46, fig. 4; pl. 51, fig. 6.
Lower Burlington L. S.: Burlington, Iowa.

Periechocrinus whitei Hall.

1861. *Actinocrinus* (*Megistocrinus*) *olliculus*. Hall, Desc. New Spec. Crin., p. 2.
Burlington L. S.

1861. *Actinocrinus* (*Megistocrinus*) *Whitei*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 271.
Burlington L. S.: Burlington, Iowa.

1861. *Actinocrinus* (*Paradocrinus*?) *amplus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 133.
Burlington L. S.: Burlington, Iowa.

1868. *Actinocrinus* (*Saccocrinus*?) *amplus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 470, pl. 16, fig. 2.
Burlington Group: Burlington, Iowa.

1872. *Actinocrinus* (*Megistocrinus*) *Whitei*. Hall, Photo. Plates of Crinoids, pl. 4, figs. 4, 5. (Not fig. 6.)

1873. *Megistocrinus* (*Saccocrinus*) *Whitei*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 397, pl. 6, fig. 1.
Burlington L. S.: Burlington, Iowa.

1893. *Periechocrinus whitei*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 27, pl. 2, fig. 29.
Burlington L. S.: Burlington, Iowa.

1894. *Periechocrinus*? *whitei*. Keyes, Mo. Geol. Surv., vol. 4, p. 164.
Lower Burlington L. S.: Hannibal, Missouri.

1897. (?) *Periechocrinus Whitei*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 530, pl. 46, figs. 1-3; pl. 51, figs. 9, 10.
Kinderhook Group: Le Grand, Marshall County, Iowa.
Upper and Lower Burlington L. S.: Burlington, Iowa.

PERISCHODOMUS McCoy, 1849.

Perischodomus illinoiensis Worthen and Miller.

Perischodomus Illinotensis. Worthen and Miller, Geol. Surv. Ill., vol. 7, p. 333, pl. 31, fig. 8.

Chester L. S.: Bay City, Pope County, Illinois.

1895. *Perischodomus*? *illinoiensis*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 191.
Kaskaskia L. S.: Bay City, Pope County, Illinois.

PERNOPECTEN Winchell, 1865.

Pernopecten attenuatus Herrick.

1887. *Entolium attenuatum*. Herrick, Bull. Den. Univ., vol. 2, p. 24, pl. 1, fig. 11.
Coal Measures: Flint Ridge, Ohio.

Pernopecten aviculatus Swallow.

1858. *Pecten aviculatus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 213.
Coal Measures: Valley of Verdigris, Kansas.
1872. *Entolium aviculatum*. Meek, U. S. Geol. Surv. Nebr., p. 189, pl. 9, figs. 11a-f.
Upper Coal Measures: Nebraska City, Bennett's Hill, Plattsmouth, and Rock Bluff, Nebraska; Iowa; Kansas.
Coal Measures: Illinois.
1873. *Entolium aviculatum*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 588, pl. 26, fig. 12.
1884. *Entolium aviculatum*. White, 13th Rep. Geol. Surv. Ind., p. 142, pl. 28, figs. 7, 8.
Coal Measures: Fountain, Vermilion, Vigo, Pike, Dubois, Perry, and Spencer counties, Indiana.
1887. *Entolium aviculatum*. Herrick, Bull. Den. Univ., vol. 2, p. 23, pl. 1, figs. 1, 2; pl. 3, fig. 10.
Coal Measures: Flint Ridge, Ohio.
1888. *Entolium aviculatum*. Herrick, Bull. Den. Univ., vol. 4, pl. 10, figs. 5-7.
Waverly Group: Cuyahoga Falls, Ohio.
1894. *Entolium aviculatum*. Keyes, Mo. Geol. Surv., vol. 5, p. 109, pl. 42, figs. 2a, b.
Upper Coal Measures: Kansas City, Missouri.
1895. *Entolium aviculatum*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, figs. 19, 21; pl. 24, fig. 6.
Cuyahoga Shale: Moot's Run, Ohio.

Pernopecten circulus Shumard.

1850. *Avicula circulus*. Shumard, Geol. Surv. Mo., p. 206, pl. C, figs. 14a, b.
Chouteau L. S.: Vandever's Falls, Cooper County, and in Moniteau County, Missouri.
1858. *Avicula circulus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 522, pl. 7, fig. 9.
Chemung Group: Burlington, Iowa.
1894. *Entolium circulus*. Keyes, Mo. Geol. Surv., vol. 5, p. 109.
Chouteau L. S.: Vandever Falls, Missouri.

Pernopecten cooperensis Shumard.

1855. *Avicula Cooperensis*. Shumard, Geol. Rep. Mo., p. 206, pl. C, fig. 15.
Chouteau L. S.: Vandever's Falls, Cooper County, Missouri.
1870. *Pernopecten? Cooperensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 254.
Waverly Group: Newark, Ohio.
1894. *Entolium cooperensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 109.
Chouteau L. S.: Vandever Falls, Missouri.

Pernopecten limaformis White and Whitfield.

1862. *Aviculo-pecten limaformis*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 295.
Chemung Group: Burlington, Iowa.
1865. *Pernopecten limaformis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 126.
1884. *Pernopecten limiformis*. Hall, Rep. N. Y. State Geol. for 1881, pl. 1, figs. 1, 2.
Burlington S. S.: Burlington, Iowa.

Pernopecten limatus Winchell.

1865. *Pernopecten limatus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 126.
Base of Burlington L. S.: Burlington, Iowa.
1870. *Pernopecten limatus?* Winchell, Proc. Am. Phil. Soc., vol. 11, p. 255.
Waverly Group: Newark and Sciotoville, Ohio.

***Pernopecten shumardanus* Winchell.**

1865. *Pernopecten Shumardanus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 126.
 1868. *Pernopecten Shumardianus?* Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 453, pl. 14, figs. 6a, b.
 Kinderhook Group (oolite bed): Burlington, Iowa
 1875. *Entolium Shumardianum?* Meek, Pal. Ohio, vol. 2, p. 292, pl. 15, figs. 4a, b.
 Waverly Group: Richmond and Lodi, Ohio.
 1884. *Pernopecten Shumardanus*. Hall, Rep. N. Y. State Geol. for 1881, pl. 1, fig. 3.
 Waverly Group: Newark, Ohio.
 1888. *Pernopecten shumardanus* ?? Herrick, Bull. Den. Univ., vol. 3, p. 57, pl. 12, figs. 13-15.
 Waverly Group: Licking County, Ohio.

PETRABLATTINA Scudder, 1876.***Petrablattina hastata* Scudder.**

1895. *Petrablattina hastata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 141, pl. 11, fig. 10.
 Lower Permian: Cassville, West Virginia.

***Petrablattina sepulta* Scudder.**

1876. *Blattina sepulta*. Scudder, Proc. Am. Ass. Adv. Sci., vol. 24, p. 111, fig. 2.
 Carboniferous: Near Sydney, Cape Breton.
 *1876. *Blattina sepulta*. Scudder, Can. Nat. (N. S.), vol. 8, p. 89, fig. 2.
 Carboniferous: Cape Breton, Nova Scotia.
 1878. *Blattina Sepulta*. Dawson, Supp. to 2d ed. Acad. Geol., p. 53, fig. 7.
 Carboniferous: Nova Scotia.
 1879. *Petrablattina sepulta*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 125, pl. 6, fig. 7.
 Lower Carboniferous: Sydney, Cape Breton.
 1890. *Petrablattina sepulta*. Scudder, Foss. Insc. N. A., vol. 1, p. 145, pl. 6, fig. 7.
 Carboniferous: Sydney, Cape Breton.
 1895. *Petrablattina sepulta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 140.
 Lower Coal Measures: Sydney, Cape Breton Island.

PHACOCERAS Hyatt, 1883.***Phacoceras dumbeli* Hyatt.**

1891. *Phacoceras Dumbli*. Hyatt, 2d Ann. Rept. Geol. Surv. Tex., p. 347, figs. 50, 51.
 Carboniferous: Fort Riley, Kansas.
 1893. *Phacoceras Dumbeli*. Hay, Trans. Kans. Acad. Sci., vol. 13, p. 45.
 Permian: Fort Riley, Kansas.

PHÆNOSCHISMA Etheridge and Carpenter, 1882.***Phænoschisma kentuckyensis* Shumard.**

1858. *Pentremites (Codaster?) Kentuckyensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 239, pl. 9, fig. 5.
 Base of Carboniferous: "Button-mould Knob," south of Louisville, Kentucky.

(PHÆTHONIDES Angelin, 1878.)

Phæthonides immaturus Herrick. See *Brachymetopus immaturus*.

Phæthonides lodiensis Herrick. See *Brachymetopus lodiensis*.

Phæthonides occidentalis Herrick. See *Brachymetopus occidentalis*.

Phæthonides spinosus Herrick. See *Brachymetopus spinosus*.

PHANEROTINUS Sowerby, 1844.

Phanerotinus gyroceras Roemer.

1852. *Euomphalus gyroceras*. Roemer, Kreid. von Texas, p. 91, Taf. 11, figs. 6a, b.
Carboniferous†: San Saba Valley, 20 miles below the old Spanish Forts.

Phanerotinus paradoxus Winchell.

1863. *Phanerotinus paradoxus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 21.
Yellow S. S.: Burlington, Iowa.
1879. *Phanerotinus paradoxus*. Hall, Pal. N. Y., vol. 5, pt. 2, p. 60, pl. 16, fig. 16.
1894. *Phanerotinus paradoxus*. Keyes, Mo. Geol. Surv., vol. 5, p. 164, pl. 52, fig. 7.
Lower Burlington L. S.: Louisiana, Missouri.

Phanerotinus subplanus Hall.

1852. *Euomphalus subplanus*. Hall, Stansb. Exped. Gt. Salt Lake, p. 414, pl. 2,
figs. 7a, b.
Carboniferous: Stansbury's Island, Great Salt Lake, Utah; and Big and
Little Blue rivers.

PHIALOCRINUS Trautschold, 1879.

Phialocrinus angulatus Miller and Gurley.

1894. *Æsiocrinus angulatus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat.
Hist., p. 59, pl. 6, fig. 9.
Upper Coal Measures: Kansas City, Missouri.

Phialocrinus barydactylus Keyes.

1894. *Phialocrinus barydactylus*. Keyes, Mo. Geol. Surv., vol. 4, p. 220, pl. 28, fig. 1.
Upper Coal Measures: Kansas City, Missouri.

Phialocrinus basilicus Miller and Gurley.

1890. *Æsiocrinus basilicus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 369,
pl. 9, figs. 4-6.
Upper Coal Measures: Kansas City, Missouri.
1894. *Phialocrinus basiliscus*. Keyes, Mo. Geol. Surv., vol. 4, p. 220.
Upper Coal Measures: Kansas City, Missouri.

Phialocrinus carbonarius. See *Graphiocrinus carbonarius*.

Phialocrinus harii Miller and Gurley.

1890. *Æsiocrinus harii*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13,
p. 16, pl. 3, fig. 1.
Upper Coal Measures: Kansas City, Missouri.
1890. *Æsiocrinus harii*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 368,
pl. 3, fig. 1.
Upper Coal Measures: Kansas City, Missouri.
1890. *Æsiocrinus Harii*. Anon, The Naturalist (Kansas City), vol. 4, No. 10,
fig.
Upper Coal Measures: Kansas City, Missouri.
1894. *Phialocrinus harii*. Keyes, Mo. Geol. Surv., vol. 4, p. 219, pl. 29, fig. 1.
Upper Coal Measures: Kansas City, Missouri.

Phialocrinus lykinsi Butts.

1890. *Æsiocrinus lykinsi*. Butts, The Naturalist (Kansas City), vol. 4, No. 10, fig.
Upper Coal Measures: Kansas City, Missouri.

Phialocrinus magnificus Miller and Gurley.

1890. *Æsiocrinus magnificus*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 15, pl. 2, figs. 1-5.

Upper Coal Measures: Kansas City, Missouri.

1890. *Æsiocrinus magnificus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 337, pl. 2, figs. 1-5.

Upper Coal Measures: Kansas City, Missouri.

1894. *Phialocrinus magnificus*. Keyes, Mo. Geol. Surv., vol. 4, p. 220, pl. 28, fig. 4.

Upper Coal Measures: Kansas City, Missouri.

Phialocrinus stillativus. See *Cyathocrinus stillativus*.

PHILLIPSIA Portlock, 1843.

Phillipsia auriculatus. - See *Proetus missouriensis*.

Phillipsia bufo. See *Griffithides bufo*.

Phillipsia cliftonensis Shumard.

1858. *Phillipsia Cliftonensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 227.

Upper Coal Measures: Clifton Park, Kansas.

1887. *Phillipsia cliftonensis*. Herrick, Bull. Den. Univ., vol. 2, p. 61.

Upper Coal Measures: Kansas.

1887. *Phillipsia cliftonensis*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 84.

Upper Coal Measures: Clifton Park, Kansas.

1897. *Phillipsia cliftonensis*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 60, pl. 22, figs. 5a, b.

Upper Coal Measures: Poteau Mountain, Indian Territory.

Phillipsia consors Herrick.

1888. *Phillipsia* (?) *consors*. Herrick, Bull. Den. Univ., vol. 4, p. 53, pl. 1, figs. 16a-c.

Waverly Group: Lodi, Ohio.

1889. *Phillipsia* (?) *consors*. Herrick, Am. Geol., vol. 3, pl. 1, fig. 16.

1891. *Phillipsia* (?) *consors*. Herrick, Bull. Geol. Soc. Am., vol. 2, p. 43.

Waverly Group: Cuyahoga Falls, Ohio.

Phillipsia doris. See *Proetus doris*.

Phillipsia howi Billings.

*1863. *Phillipsia howi*. Billings, Can. Nat., vol. 8, p. 209, fig.

Carboniferous: Kennetcook, Nova Scotia.

1868. *Phillipsia Howi*. Dawson, Acad. Geol., p. 313, fig. 133.

Carboniferous L. S.: Kennetcook, Nova Scotia.

1887. *Phillipsia howi*. Herrick, Bull. Den. Univ., vol. 2, p. 63.

1887. *Phillipsia howi*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 91.

Lower Carboniferous: Kennetcook, Nova Scotia.

Phillipsia immaturus. See *Brachymetopus immaturus*.

Phillipsia insignis Winchell.

1863. *Phillipsia insignis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 24.

Base of Burlington L. S.: Burlington, Iowa.

*1863. *Phillipsia insignis*. Billings, Can. Nat., vol. 8, p. 209.

Carboniferous: Nova Scotia.

1887. *Phillipsia insignis*. Herrick, Bull. Den. Univ., vol. 2, p. 63.

1887. *Phillipsia insignis*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 87.

Base of Burlington L. S.: Burlington, Iowa.

Phillipsia lodiensis. See *Brachymetopus lodiensis*.

Phillipsia major Shumard.

1823. *Trilobus*. Say, Long's Exped. to Rocky Mts., vol. 1, p. 148 (footnote).
Missouri River, 5 miles below Council Bluffs.
1858. *Phillipsia major*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 226.
Upper Coal Measures: Clinton County, Missouri; Valley of Verdigris, and
12 miles south of Lecompton on the Santa Fé road, Kansas.
1872. *Phillipsia major*. Meek, U. S. Geol. Surv. Nebr., p. 238, pl. 3, figs. 2a-c.
Upper Coal Measures: Bellevue and Plattsmouth, Nebraska; Clinton
County, Missouri; Vermilion River, 12 miles south of Lecompton, Kansas.
1887. *Phillipsia major*. Herrick, Bull. Den. Univ., vol. 2, p. 60.
Upper Coal Measures: Kansas.
1887. *Phillipsia major*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 85, pl. 3, fig. 14.
Upper Coal Measures: Clinton County, Missouri; Valley of the Verdigris
River, 12 miles south of Lecompton on the Santa Fé road, Kansas;
Kansas City, Missouri; Bellevue, Nebraska.
- *1891. *Phillipsia major*. Hare, Kansas City Scientist, vol. 8, p. 33, pl. 1, figs. 5, 8a-c.
Coal Measures: Kansas City, Missouri.
1894. *Phillipsia major*. Keyes, Mo. Geol. Surv., vol. 4, p. 238, pl. 32, figs. 8a-e.
Upper Coal Measures: Kansas City, Missouri.
1897. *Trilobus*. Harris, Bull. Am. Pal., vol. 1, p. 382 (112).

Phillipsia meramecensis Shumard.

1855. *Phillipsia Meramecensis*. Shumard, 1st and 2d Geol. Rep. Mo., p. 199, pl. B,
fig. 9.
Archimedes L. S.: Fenton, St. Louis County, Missouri.
1863. *Phillipsia Meramecensis*? Winchell, Proc. Acad. Nat. Sci. Phil., p. 24.
Yellow S. S.: Burlington, Iowa.
1887. *Phillipsia meramecensis*. Herrick, Bull. Den. Univ., vol. 2, p. 59.
Archimedes L. S.: St. Louis County, Missouri.
1887. *Phillipsia meramecensis*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 86, pl. 3,
fig. 15.
Chester Series: Fenton, St. Louis County, Missouri.
1888. *Phillipsia meramecensis*. Herrick, Bull. Den. Univ., vol. 3, p. 28.
Near top of Waverly Group: East of Rushville, Ohio.
1888. *Phillipsia meramecensis*. Herrick, Bull. Den. Univ., vol. 4, p. 54, pl. 1, fig. 6.
Waverly Group: Ohio.
1889. *Phillipsia meramecensis*. Herrick, Am. Geol., vol. 3, pl. 1, fig. 6.
1891. *Phillipsia meramecensis*. Herrick, Bull. Geol. Soc. Am., vol. 2, p. 43, pl. 1,
fig. 14.
Upper Waverly Group: Scioto County, Ohio.
1894. *Phillipsia meramecensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 235.
Keokuk L. S.: St. Louis and Fenton, Missouri.
1895. *Phillipsia meramecensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 14, fig. 6.

Phillipsia missouriensis Shumard.

1858. *Phillipsia Missouriensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1,
p. 225.
Middle Coal Measures: Lexington, Missouri.
1870. *Phillipsia Missouriensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 259.
Waverly Group: Newark, Ohio.
1887. *Phillipsia missouriensis*. Herrick, Bull. Den. Univ., vol. 2, p. 59.
1887. *Phillipsia missouriensis*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 86, pl. 3,
figs. 1, 2.
Middle Coal Measures: Lexington, Missouri.
1894. *Phillipsia missouriensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 235.
Coal Measures: Lexington, Missouri.

Phillipsia nodocostatus Hare.

- *1891. *Phillipsia nodocostatus*. Hare, Kansas City Scientist, vol. 8, p. 33, pl. 1, figs. 1a-e, 7.

Upper Coal Measures: Kansas City, Missouri.

Phillipsia ornatus. See *Griffithides ornata*.

Phillipsia portlocki. See *Griffithides portlocki*.

Phillipsia perannulata Shumard.

1858. *Phillipsia perannulata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 296.
White Permian L. S.: Guadalupe Mountains, New Mexico.

1859. *Phillipsia perannulata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 388,
pl. 11, fig. 10.

White Permian L. S.: Guadalupe Mountains, New Mexico.

1887. *Phillipsia perannulata*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 84.

Carboniferous: Guadalupe Mountains, New Mexico.

Phillipsia præcursor Herrick.

1888. *Phillipsia præcursor*. Herrick, Bull. Den. Univ., vol. 3, p. 29, pl. 12, fig. 1.
Waverly Group: Moot's Run, Ohio.

1888. *Phillipsia* (*Proetus*) *præcursor*. Herrick, Bull. Den. Univ., vol. 4, p. 54, pl. 1,
figs. 1-3.

Waverly Group: 4 miles west of Granville, Ohio.

1889. *Proetus* (*Phillipsia* ?) *præcursor*. Herrick, Am. Geol., vol. 3, pl. 1, figs. 1-3.

1891. *Proetus præcursor*. Herrick, Bull. Geol. Soc. Am., vol. 2, pl. 1, fig. 12.

Waverly Group: Cuyahoga Falls, Ohio.

1895. *Prætus præcursor*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 14, figs. 1-3, 16a.

Cuyahoga Shale: Moot's Run and Lodi, Ohio.

Phillipsia rockfordensis Winchell.

1865. *Phillipsia Rockfordensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 133.

Marshall Group: Rockford, Indiana.

1887. *Phillipsia rockfordensis*. Herrick, Bull. Den. Univ., vol. 2, p. 62.

1887. *Phillipsia rockfordensis*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 91.

Goniatite L. S.: Rockford, Indiana.

Phillipsia sampsoni Vogdes.

1888. *Phillipsia sampsoni*. Vogdes, Trans. N. Y. Acad. Sci., vol. 7, p. 248, 2 figs.

Waverly Group: Sedalia, Missouri.

1894. *Phillipsia sampsoni*. Keyes, Mo. Geol. Surv., vol. 4, p. 235.

Chouteau L. S.: Sedalia, Missouri.

Phillipsia sangamonensis. See *Griffithides sangamonensis*.

Phillipsia scitula. See *Griffithides scitula*.

Phillipsia sedaliensis. See *Griffithides sedaliensis*.

Phillipsia serraticaudata Herrick.

1888. *Phillipsia serraticaudata*. Herrick, Bull. Den. Univ., vol. 4, p. 52, pl. 1,
figs. 8a-d.

Waverly Group: Richland County, Newark and Rushville, Ohio.

1889. *Phillipsia serraticaudata*. Herrick, Am. Geol., vol. 3, pl. 1, fig. 8 (11 f f).

1895. *Phillipsia serraticaudata*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 14, figs. 8a-d.

Upper Waverly Group: Newark, Ohio.

Phillipsia shumardi. See *Proetus missouriensis*.

Phillipsia swallowi. See *Proetus swallowi*.

Phillipsia tennesseensis Winchell. See *Proetus tennesseensis*.

Phillipsia stvensoni Meek.

- *1870. *Phillipsia Stevensoni*. Meek, 3d Ann. Rep. Board of Regents W. Va. Univ., p. 73.

Chester Series: Monongalia County, West Virginia.

1887. *Phillipsia stvensoni*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 88, pl. 3, fig. 6.
Chester Series: Monongalia County, West Virginia.

Phillipsia trinucleata Herrick.

1887. *Phillipsia trinucleata*. Herrick, Bull. Den. Univ., vol. 2, p. 64, pl. 1, fig. 23; pl. 2, fig. 32; pl. 3, fig. 21.

Coal Measures: Flint Ridge, Ohio.

1888. *Proetus trinucleatus*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 81, pl. 2, figs. 7-9.

Waverly Group: Flint Ridge, Licking County, Ohio.

Phillipsia tuberculata Meek and Worthen.

1870. *Phillipsia tuberculata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 52.
Burlington L. S.: Kinderhook, Pike County, Illinois.

1887. *Phillipsia tuberculata*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 92.
Burlington Group: Kinderhook, Pike County, Illinois.

1894. *Phillipsia tuberculata*. Keyes, Mo. Geol. Surv., vol. 4, p. 235, pl. 32, fig. 6.
Burlington L. S.: Sedalia, Missouri.

Phillipsia vindobonensis Hartt.

1868. *Phillipsia Vindobonensis*. Hartt, Dawson's Acad. Geol., p. 313.

Carboniferous L. S.: Nova Scotia.

1887. *Phillipsia vindobonensis*. Herrick, Bull. Den. Univ., vol. 2, p. 63.

1887. *Phillipsia vindobonensis*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 89.
Lower Carboniferous: Windsor, Nova Scotia.

Phillipsia (species undetermined).

1855. *Phillipsia*. Schiel, Pac. R. R. Rep., vol. 2, p. 109, pl. 1, figs. 11, 14.
Carboniferous L. S.: Near Westport and west of Indian Creek.

1858. *Phillipsia*. Species not determined. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 181.

Lower Permian: Kansas.

1866. *Phillipsia* sp. Geinitz, Carb. und Dyas in Nebr., p. 1, tab. 1, fig. 1.
Plattsmouth, Nebraska.

1872. *Phillipsia* sp. Meek, U. S. Geol. Surv. Nebr., p. 237, pl. 3, figs. 1a, b.
Upper Coal Measures: Plattsmouth, Nebraska.

1876. *Phillipsia* — ? —. White, Powell's Rep. Geol. Uinta Mts., p. 91.
Lower Aubrey Group: Near Echo Park, Utah.

1888. *Phillipsia*? Herrick, Bull. Den. Univ., vol. 3, pl. 8, fig. 24.
Waverly Group: Licking County, Ohio.

1888. *Phillipsia* (sp. ?) Keyes, Proc. Acad. Nat. Sci. Phil., p. 243.
Lower Coal Measures: Des Moines, Iowa.

1897. *Phillipsia* sp. Smith, Proc. Am. Phil. Soc., vol. 35, p. 61.
Lower Coal Measures: Johnson County, Arkansas.

1897. *Phillipsia* sp. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 272, pl. 20, fig. 11.
Batesville S. S.: Batesville, Arkansas.

(PHILOCRINUS DeKoninck, 1863.)

Philocrinus pelvis. See *Erisocrinus typus*.

PHOLADELLA Hall, 1870.

Pholadella cuneata. See *Promacrus cuneatus*.

Pholadella newberryi Hall.

- *1870. *Pholadella Newberryi*. Hall, Prelim. Not. Lamell., 2, p. 65.
Waverly S. S.: Licking County, Ohio.
1884. *Pholadella Newberryi*. Hall, Rep. N. Y. State Geol. for 1881, pl. 11, fig. 22.
Waverly S. S.: Licking County, Ohio.
1885. *Pholadella Newberryi*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 471, pl. 78, fig. 25.
Waverly Group: Licking County, Ohio.
1888. *Pholadella newberryi*. Herrick, Bull. Den. Univ., vol. 3, p. 85, pl. 3, fig. 27;
pl. 4, fig. 4.
Waverly Group: Licking County, Ohio.
1891. *Pholadella Newberryi*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 609.
1895. *Pholadella Newberryi*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 494.

(PHOLADOMYA Sowerby, 1823.)

Pholadomya elongata. See *Allorisma elongatum*.

PHOLIDOCIDARIS Meek and Worthen, 1869.

Pholidocidaris irregularis Meek and Worthen.

1869. *Lepidocentrus irregularis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 78.
Keokuk L. S.: Hamilton and near Nauvoo, Illinois.
1873. *Pholidocidaris irregularis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 512,
pl. 15, fig. 9.
Keokuk Group: Hamilton and near Nauvoo, Illinois.
1874. *Pholidocidaris irregularis*. Meek, Am. Jour. Sci. (3), vol. 7, p. 375.
1895. *Pholidocidaris irregularis*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 180.
Keokuk L. S.: Hamilton and near Nauvoo, Illinois.

Pholidocidaris meeki Jackson.

1896. *Pholidocidaris meeki*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 210, pl. 9,
fig. 54.
Keokuk Group: Warsaw, Illinois.

PHOLIDOPS Hall, 1859

Pholidops (species undetermined).

1892. *Pholidops* compare *P. Hamiltonia*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1,
pl. 4 I, fig. 37.
Bedford Shales: Bedford, Ohio.

PHRAGMOCERAS Broderip, 1839.

Phragmoceras expansum Winchell.

1863. *Phragmoceras expansum*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 23.
Yellow S. S.: Burlington, Iowa.

Phragmoceras missouriense Miller.

1891. *Phragmoceras missouriense*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind.,
p. 89, pl. 15, fig. 2.
Chouteau L. S.: Pettis County, Missouri.
1892. *Phragmoceras missouriense*. Miller, 17th Rep. Geol. Surv. Ind., p. 699, pl. 15,
fig. 2.
Chouteau L. S.: Pettis County, Missouri.
1894. *Phragmoceras missouriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 220.
Chouteau L. S.: Sedalia, Missouri.

PHRAGMODICTYA Hall, 1884.

Phragmodictya catilliformis Whitfield.

1881. *Dictyophyton catilliforme*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 18, pl. 3, fig. 1.
Keokuk Group: Crawfordsville, Indiana.
1884. *Phragmodictya catilliformis*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 477, pl. 18, figs. 12-14; pl. 20, figs. 2, 3; pl. 21, figs. 1-6.
Keokuk Group: Crawfordsville, Indiana.

Phragmodictya lineata Hall.

1884. *Phragmodictya lineata*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 478, pl. 21, fig. 8.
Keokuk Group: Crawfordsville, Indiana.

Phragmodictya patelliformis Hall.

1884. *Phragmodictya patelliformis*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 478.
Keokuk Group: Crawfordsville, Indiana.

PHTHANOCORIS Scudder, 1884.

Phthanocoris occidentalis Scudder.

1883. *Phthanocoris occidentalis*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 22, p. 59.
Coal Measures: Kansas City, Missouri.
1885. *Phthanocoris occidentalis*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 348, pl. 32, fig. 4.
Coal Measures: Kansas City, Missouri.
1890. *Phthanocoris occidentalis*. Scudder, Foss. Insc. N. A., vol. 1, p. 312, pl. 18, fig. 4.
Coal Measures: Kansas City, Missouri.

PHYSA Dapernaund, 1801.

Physa prisca Walcott.

1883. *Physa prisca*. Walcott, Science, vol. 2, p. 808, fig. 2.
Base of Carboniferous: Eureka District, Nevada.
1884. *Physa prisca*. Walcott, Pal. Eureka Dist., p. 262, fig. 6.
Lower Carboniferous: Eureka District, Nevada.

PHYSETOCRINUS Meek and Worthen, 1869.

Physetocrinus asper Meek and Worthen.

1869. *Strotocrinus (Physetocrinus?) asper*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 161.
Upper Burlington L. S.: Burlington, Iowa.
1873. *Strotocrinus (Physetocrinus?) asper*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 351, pl. 7, fig. 1.
Burlington L. S.: Burlington, Iowa.
1897. *Physetocrinus asper*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 596, pl. 63, figs. 7a, b.
Upper Burlington L. S.: Burlington, Iowa.

Physetocrinus copei Miller.

1881. *Actinocrinus copei*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 310.
Subcarboniferous: Lake Valley Mining District, New Mexico.
1897. *Physetocrinus Copei*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 598, pl. 63, fig. 5.
Lower Burlington L. S.: Lake Valley, New Mexico.

Physetocrinus dilatatus Meek and Worthen.

1869. *Strotocrinus (Physetocrinus) dilatatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 162.
Lower Burlington L. S.: Burlington, Iowa.
1873. *Strotocrinus (Physetocrinus) dilatatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 363, pl. 10, fig. 6.
Burlington L. S.: Burlington, Iowa.
1897. *Physetocrinus dilatatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 595, pl. 64, figs. 9, 10.
Upper Burlington L. S.: Burlington, Iowa.

Physetocrinus lobatus Wachsmuth and Springer.

1897. *Physetocrinus lobatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 599, pl. 63, figs. 8a, b.
Lower Burlington L. S.: Lake Valley, New Mexico.

Physetocrinus ornatus Hall.

1858. *Actinocrinus ornatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 583, pl. 10, fig. 12.
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus senarius*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 25.
Burlington L. S.: Burlington, Iowa.
1892. *Actinocrinus brittsi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 36, pl. 6, figs. 1-4.
Burlington Group: Sedalia, Missouri.
1894. *Actinocrinus brittsi*. Miller, 18th Rep. Geol. Surv. Ind., p. 290, pl. 6, figs. 1-4.
Burlington Group: Sedalia, Missouri.
1894. *Actinocrinus brittsi*. Keyes, Mo. Geol. Surv., vol. 4, p. 188.
Burlington L. S.: Sedalia, Missouri.
1894. *Physetocrinus ornatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 192, pl. 24, fig. 7.
Lower Burlington L. S.: Hannibal, Louisiana, and Sedalia, Missouri.
1897. *Physetocrinus ornatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 597, pl. 63, figs. 1-4.
Lower Burlington L. S.: Burlington, Iowa.

Physetocrinus sampsoni Miller and Gurley.

1896. *Physetocrinus sampsoni*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 14, pl. 1, figs. 5-7.
Burlington Group: Sedalia, Missouri.

Physetocrinus ventricosus Hall.

1858. *Actinocrinus ventricosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 595, pl. 11, figs. 6a, b.
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus subventricosus*. McChesney, Desc. New Pal. Foss., p. 21.
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus ventricosus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, pl. 2, fig. 5.
1861. *Actinocrinus ventricosus* var. *cancellatus*. Hall, Desc. New Spec. Crin., p. 3.
Burlington L. S.
1861. *Actinocrinus ventricosus* var. *internodius*. Hall, Desc. New Spec. Crin., p. 3.
Burlington L. S.
1861. *Actinocrinus ventricosus* var. *internodius*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 278.
Burlington L. S.: Burlington, Iowa.
1861. *Actinocrinus ventricosus* var. *reticulatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 279.
1865. *Actinocrinus subventricosus*. McChesney, Ill. New Spec. Foss., pl. 4, figs. 6a-b.

Physetocrinus ventricosus Hall—Continued.

1868. *Actinocrinus subventricosus*. McClesney, Trans. Chicago Acad. Sci., vol. 1, p. 16, pl. 4, figs. 6a, b.
Burlington L. S.: Burlington, Iowa.
1894. *Physetocrinus ventricosus*. Keyes, Mo. Geol. Surv., vol. 4, p. 192.
Upper Burlington L. S.: Hannibal and Sedalia, Missouri.
1897. *Physetocrinus ventricosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 593, pl. 63, fig. 6; pl. 64, figs. 1-7, 8a, b.
Upper and Lower Burlington L. S.: Burlington, Iowa; Missouri.

PHYSOSPONGIA Hall, 1884.**Physospongia alternata Hall.**

1884. *Physospongia alternata*. Hall, 35th Rep., N. Y. State Mus. Nat. Hist., p. 481, pl. 20, fig. 9.
Keokuk Group: Crawfordville, Indiana.

Physospongia colletti Hall.

1884. *Physospongia Colletti*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 480, pl. 20, fig. 7.
Keokuk Group: Crawfordville, Indiana.

Physospongia dawsoni Whitfield.

1881. *Uphantænia Dawsoni*. Whitfield, Am. Jour. Sci. (3), vol. 22, p. 132.
Keokuk Group: Crawfordville, Indiana.
1881. *Uphantænia Dawsoni*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 16, pl. 4, figs. 1, 2.
Keokuk Group: Crawfordville, Indiana.
1884. *Physospongia Dawsoni*. Hall, 35th Rep., N. Y. State Mus. Nat. Hist., p. 479, pl. 20, figs. 4-6, 8.
Keokuk Group: Crawfordville, Indiana.

(PILEOPSIS Lamark, 1812.)

Pileopsis pabulocrinus. See *Igoceras pabulocrinus*.

PINNA Linnaeus, 1758.

Pinna adamsi. See *Pinná peracuta*.

Pinna arkansana Weller.

1897. *Pinna arkansana*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 260, pl. 19, figs. 1, 2.
Batesville S. S.: Batesville, Arkansas.

Pinna consimilis Walcott.

1884. *Pinna consimilis*. Walcott, Pal. Eureka Dist., p. 236, pl. 20, fig. 13.
Lower Carboniferous: Eureka District and White Pine District, Nevada.

Pinna hinrichsana White and St. John.

1868. *Pinna Hinrichsiana*. White and St. John, Trans. Chicago Acad. Sci., vol. 1, p. 122, fig. 7.
St. Louis L. S.: Near Pella, Iowa.

Pinna inexpectans Walcott.

1884. *Pinna inexpectans*. Walcott, Pal. Eureka District, p. 235, pl. 19, fig. 11.
Lower Carboniferous: Eureka District, Nevada.

Pinna ludlovi Whitfield.

1876. *Pinna Ludlovi*. Whitfield, Ludlow's Recon. Carroll, Mont., to Yell. Nat. Park, p. 143, pl. 1, figs. 6, 7.
Coal Measure L. S.: Canyon of Musselshell, Montana.

***Pinna marshallensis* Winchell.**

1865. *Pinna ? Marshallensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 128.
Marshall Group: Napoleon Cut, Jackson County, Michigan.

***Pinna maxvillensis* Whitfield.**

1882. *Pinna Maxvillensis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 221.
Maxville L. S.: Maxville, Ohio.
1891. *Pinna Maxvillensis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 586, pl. 14,
fig. 5.
Maxville L. S.: Maxville, Ohio.
1895. *Pinna Maxvillensis*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 474, pl. 10, fig. 5.
Maxville L. S.: Maxville, Ohio.

***Pinna missouriensis* Swallow.**

1863. *Pinna Missouriensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 97.
Ste. Genevieve L. S.: Missouri and Illinois.
1894. *Pinna missouriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 116.
St. Louis L. S.: Ste. Genevieve, Missouri.

***Pinna peracuta* Shumard.**

1858. *Pinna peracuta*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 214.
Upper Coal Measures: Iowa Point, Nebraska; Kansas.
1860. *Pinna adamsi*. McChesney, Desc. New Pal. Foss., p. 74.
Coal Measures: Lasalle, Illinois.
1872. *Pinna peracuta*. Meek, U. S. Geol. Surv. Nebr., p. 198, pl. 6, figs. 11a, b.
Upper Coal Measures: Bennett's Mill, Wyoming; Nebraska City, Plattsmouth, Rock Bluff, and Bellevue, Nebraska.
Coal Measures: Iowa, Nebraska, Kansas, Missouri, and Illinois.
1877. *Pinna peracuta* (?) White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 151,
pl. 11, fig. 5a.
Carboniferous: Near Relief Spring, Arizona.
1884. *Pinna peracuta*. White, 13th Rep. Geol. Surv. Ind., p. 145, pl. 28, figs. 1, 2.
Upper, Middle, and Lower Coal Measures: Indiana.
1886. *Pinna peracuta*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2,
pt. 2, p. 272, fig. 12; p. 273, fig. 12a.
Mill Creek L. S. Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Pinna peracuta*. Heilprin, 2d Geol. Surv. Penn., Ann. Rep. 1885, p. 455,
p. 444, fig. 12; p. 454, fig. 12a.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1894. *Pinna peracuta*. Keyes, Mo. Geol. Surv., vol. 5, p. 116, pl. 45, figs. 2a, b.
Upper Coal Measures: Kansas City, Missouri.

***Pinna sancti-ludovici* Worthen.**

1883. *Pinna St. Ludovici*. Worthen, Geol. Surv. Ill., vol. 7, p. 326.
St. Louis L. S.: Monroe County, Illinois.
1890. *Pinna sancti-ludovici*. Worthen, Geol. Surv. Ill., vol. 8, p. 111, pl. 19, fig. 6.
St. Louis L. S.: Monroe County, Illinois.

***Pinna subspatulata* Worthen.**

1875. *Pinna subspatulata*. Worthen, Geol. Surv. Ill., vol. 6, p. 524, pl. 30, fig. 4.
Keokuk L. S.: Keokuk, Iowa; Warsaw, Illinois.
Warsaw beds: Warsaw, Illinois.

PINNATOPORA Vine, 1883.***Pinnatopora bellula* Ulrich.**

1880. *Pinnatopora bellula*. Ulrich, Geol. Surv. Ill., vol. 8, p. 619, pl. 66, figs. 8-8b.
Base of Coal Measures: Seville, Illinois.

***Pinnatopora conferta* Ulrich.**

1890. *Pinnatopora conferta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 618, pl. 56, fig. 5; pl. 66, fig. 6.
Keokuk Group: Keokuk, Iowa; Otter Creek, Jersey County, Illinois.
1894. *Pinnatopora conferta*. Keyes, Mo. Geol. Surv., vol. 5, p. 31.
Keokuk L. S.: Keokuk, Iowa.

***Pinnatopora curvata* Ulrich.**

1888. *Pinnatopora curvata*. Ulrich, Bull. Den. Univ., vol. 4, p. 76, pl. 14, fig. 4.
Cuyahoga Shale: Richfield, Ohio.

***Pinnatopora flexuosa* Ulrich.**

1890. *Pinnatopora flexuosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 617, pl. 66, figs. 4-4c.
Keokuk Group: King's Mountain, Kentucky.

***Pinnatopora intermedia* Ulrich.**

1888. *Pinnatopora intermedia*. Ulrich, Bull. Den. Univ., vol. 4, p. 74, pl. 14, fig. 1.
Cuyahoga Shale: Richfield, Ohio.
1888. *Pinnatopora intermedia*. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 37.
Waverly Group: Ohio.

***Pinnatopora minor* Ulrich.**

1888. *Pinnatopora minor*. Ulrich, Bull. Den. Univ., vol. 4, p. 77, pl. 14, figs. 7, 7a.
Cuyahoga Shale: Richfield, Ohio.

***Pinnatopora nereidis* White.**

1874. *Glaucanome nereidis*. White, Prelim. Rep. Inv. Foss., p. 18.
Carboniferous: White Mountain and Black rivers, Arizona.
1877. *Glaucanome nereidis*. White, U. S. Geol. Surv. W. 100 Merid., vol. 4, p. 105, pl. 7, figs. 5a-e.
Carboniferous: Confluence of White Mountain and Black rivers, Arizona.

***Pinnatopora simulatrix* Ulrich.**

1888. *Pinnatopora simulatrix*. Ulrich, Bull. Den. Univ., vol. 4, p. 75, pl. 14, fig. 3.
Cuyahoga Shale: Richfield, Ohio.

***Pinnatopora striata* Ulrich.**

1890. *Pinnatopora striata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 617, pl. 66, fig. 4d.
Keokuk Group: Bentonsport, Iowa.

***Pinnatopora subangulata* Ulrich.**

1888. *Pinnatopora subangulata*. Ulrich, Bull. Den. Univ., vol. 4, p. 76, pl. 14, fig. 2.
Cuyahoga Shale: Cuyahoga Falls, Ohio.

***Pinnatopora tenuiramosa* Ulrich.**

1888. *Pinnatopora tenuiramosa*. Ulrich, Bull. Den. Univ., vol. 4, p. 79.
Cuyahoga Shale: Richfield, Ohio.
1890. *Pinnatopora tenuiramosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 619, pl. 66, fig. 7.
Waverly Group: Near Richfield, Ohio.

***Pinnatopora trilineata* Meek.**

1872. *Glaucanome trilineata*. Meek, U. S. Geol. Surv. Nebr., p. 157, pl. 7, figs. 4a-d.
Upper Coal Measures: Nebraska City, Nebraska.
1890. *Pinnatopora trilineata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 620, pl. 66, fig. 6.
Upper Coal Measures: Sangamon County, Illinois.
1894. *Pinnatopora trilineata*. Keyes, Mo. Geol. Surv., vol. 5, p. 31.
Upper Coal Measures: Kansas City, Missouri.

***Pinnatopora vinei* Ulrich.**

1888. *Pinnatopora vinei*. Ulrich, Bull. Den. Univ., vol. 4, p. 77, pl. 14, fig. 5.
Cuyahoga Shale: Richfield, Lodi, and Bagdad, Ohio.
Keokuk Group: King's Mountain, Kentucky; Keokuk, Iowa.

Pinnatopora vinei Ulrich—Continued.

1890. *Pinnatopora vinei*. Ulrich, Geol. Surv. Ill., vol. 8, p. 616, pl. 66, figs. 5–5b.
Keokuk Group: King's Mountain, Kentucky; Keokuk, Iowa.
Cuyahoga Shale: Ohio.
1894. *Pinnatopora vinei*. Keyes, Mo. Geol. Surv., vol. 5, p. 31.
Keokuk L. S.: Keokuk, Iowa.

Pinnatopora whitii Foerste.

1887. *Glaconome whitii*. Foerste, Bull. Den. Univ., vol. 2, p. 78, pl. 7, figs. 4a–c.
Coal Measures: Flint Ridge, Ohio.
1887. *Pinnatopora Whitii*. Foerste, Bull. Den. Univ., vol. 2, p. 87.

Pinnatopora youngi Ulrich.

1888. *Pinnatopora youngi*. Ulrich, Bull. Den. Univ., vol. 4, p. 78, pl. 14, figs. 6, 6a.
Cuyahoga Shale: Richfield and Lodi, Ohio.
Keokuk Group: King's Mountain, Kentucky; Keokuk, Iowa.
1890. *Pinnatopora youngi*. Ulrich, Geol. Surv. Ill., vol. 8, p. 615, pl. 66, fig. 3.
Keokuk Group: King's Mountain, Kentucky; Keokuk, Iowa.
Cuyahoga Shale: Ohio.
1894. *Pinnatopora youngi*. Keyes, Mo. Geol. Surv., vol. 5, p. 31.
Keokuk L. S.: Keokuk, Iowa.

PLACUNOPSIS Morris and Lycett, 1853.**Placunopsis carbonaria** Meek and Worthen.

- *1866. *Placunopsis carbonaria*. Meek and Worthen, Proc. Chicago Acad. Sci., vol. 1, p. 13.
Upper Coal Measures: Springfield, Illinois.
1873. *Placunopsis carbonaria*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 578, pl. 27, fig. 2.
Upper Coal Measures: Springfield, Illinois.
1874. *Placunopsis carbonaria*. Meek, Am. Jour. Sci. (3), vol. 7, p. 583.
1887. *Placunopsis carbonaria*. Herrick, Bull. Den. Univ., vol. 2, p. 145, pl. 14, fig. 27.
Coal Measures: Flint Ridge, Ohio.
1894. *Placunopsis carbonaria*. Keyes, Mo. Geol. Surv., vol. 5, p. 108, pl. 43, fig. 9.
Upper Coal Measures: Kansas City, Missouri.

Placunopsis recticardinalis Meek.

1875. *Placunopsis recticardinalis*. Meek, Pal. Ohio, vol. 2, p. 331, pl. 19, fig. 12.
Coal Measures: Flint Ridge and Putnam Hill, Ohio.
1887. *Placunopsis recticardinalis*. Herrick, Bull. Den. Univ., vol. 2, p. 43, pl. 4, fig. 11.
Coal Measures: Flint Ridge, Ohio.

(PLATYCERAS Conrad, 1840.)

Platyceras acutirostre. See *Orthonychia acutirostre*.

Platyceras biserialis. See *Capulus biserialis*.

Platyceras bivolva. See *Strophostylus bivolva*.

Platyceras boonvillense. See *Orthonychia boonvillensis*.

Platyceras capax. See *Capulus capax*.

Platyceras capulus. See *Igoceras capulus*.

Platyceras chesterense. See *Orthonychia chesterense*.

Platyceras cornuforme. See *Orthonychia cornuforme*.

- Platyceras cyrtolites*. See *Orthonychia cyrtolites*.
Platyceras equilatera. See *Capulus equilateralis*.
Platyceras extinator. See *Igoceras pabulocrinus*.
Platyceras fissurellum. See *Igoceras fissurella*.
Platyceras formosum. See *Orthonychia formosum*.
Platyceras haliotoides. See *Capulus haliotoides*.
Platyceras herzeri. See *Capulus herzeri*.
Platyceras infundibulum. See *Igoceras pabulocrinus*.
Platyceras laevigatum. See *Capulus ovalis*.
Platyceras latum. See *Capulus latus*.
Platyceras lodiense. See *Capulus lodiensis*.
Platyceras missouriense. See *Igoceras quincyense*.
Platyceras nasutum. See *Capulus nasutum*.
Platyceras nebrascense. See *Capulus parvus*.
Platyceras obliquum. See *Capulus obliquus*.
Platyceras occidens. See *Capulus occidens*.
Platyceras paraliu. See *Capulus paralius*.
Platyceras pettisense. See *Igoceras quincyense*.
Platyceras piso. See *Capulus piso*.
Platyceras quincyense. See *Igoceras quincyense*.
Platyceras reversum. See *Strophostylus reversus*.
Platyceras spinigerum. See *Capulus spinigerum*.
Platyceras subplicatum. See *Igoceras subplicatum*.
Platyceras subrectum. See *Igoceras pabulocrinus*.
Platyceras tortum. See *Naticopsis torta*.
Platyceras tribulosum. See *Capulus tribulosus*.
Platyceras uncum. See *Orthonychia acutirostre*.
Platyceras vomerium. See *Capulus vomerium*.
Platyceras (species undetermined). See *Capulus* (species undetermined).

PLATYCRINUS Miller, 1821.

***Platycrinus absentivus* Miller.**

1891. *Platycrinus absentivus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 15, pl. 1, fig. 15.
 Chouteau Group: Leucke's Quarry, 6 miles southeast of Sedalia, Missouri.
 1894. *Platycrinus absentivus*. Keyes, Mo. Geol. Surv., vol. 4, p. 196.
 Chouteau L. S.: Sedalia, Missouri.

***Platycrinus acclivus* Miller.**

1891. *Platycrinus acclivus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 12, pl. 1, figs. 9, 10.
 Burlington Group: Near Sedalia, Missouri.
 1897. *Platycrinus acclivus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 666.
 Upper Burlington L. S.: Sedalia, Missouri.

Platycrinus æqualis Hall.

- *1861. *Platycrinus æqualis*. Hall, Desc. New Spec. Crin., p. 17.
Burlington L. S.
1873. *Platycrinites æqualis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 456,
pl. 3, fig. 8.
Burlington L. S.: Burlington, Iowa.
1891. *Platycrinus batiola*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 22, pl. 3, figs. 1, 2.
Burlington Group: Sedalia, Missouri.
1894. *Platycrinus æqualis*. Keyes, Mo. Geol. Surv., vol. 4, p. 200.
Burlington L. S.: Sedalia and Louisiana, Missouri.
1897. *Platycrinus æqualis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 674,
pl. 71, figs. 4a, b, 5.
Upper Burlington L. S.: Pleasant Grove and Burlington, Iowa.

Platycrinus æquitermus Miller.

1891. *Platycrinus æquitermus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 14, pl. 1,
fig. 13.
Chouteau L. S.: Near Sedalia, Missouri.
1891. *Platycrinus curryvillensis*. Rowley and Hare, The Kansas City Scientist,
vol. 5, p. 98, pl. 2, fig. 5.
Chouteau L. S.: 3 miles east of Curryville, Missouri.
1894. *Platycrinus æquitermus*. Keyes, Mo. Geol. Surv., vol. 4, p. 196.
Chouteau L. S.: Sedalia, Missouri.
1897. *Platycrinus æquitermus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 658, pl. 71, fig. 12.
Chouteau L. S.: Sedalia, Missouri.

Platycrinus æternalis. See *Platycrinus bonoensis*.**Platycrinus agassizi Wachsmuth and Springer.**

1890. *Platycrinus planus?* Wachsmuth and Springer, Geol. Surv. Ill., vol. 8,
p. 188, pl. 16, fig. 8.
Kinderhook Group: Le Grand, Iowa.
1897. *Platycrinus Agassizi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 669,
pl. 69, fig. 4.
Kinderhook Group: Le Grand, Marshall County, Iowa.

Platycrinus alabamensis. See *Platycrinus huntsvillæ*.**Platycrinus allophylus Miller.**

1891. *Platycrinus allophyllus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 9, pl. 1,
figs. 3, 4.
Chouteau L. S.: Leucke's Quarry, 6 miles southeast of Sedalia, Missouri.
1894. *Platycrinus allophylus*. Keyes, Mo. Geol. Surv., vol. 4, p. 196.
Chouteau L. S.: Sedalia, Missouri.
1897. *Platycrinus allophylus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 685, pl. 71, fig. 17.
Chouteau L. S.: Near Sedalia, Missouri.

Platycrinus altidorsatus Rowley and Hare.

1891. *Platycrinus alti-dorsatus*. Rowley and Hare, The Kansas City Scientist,
vol. 5, p. 97, pl. 2, fig. 2.
Upper Burlington Chert: Louisiana, Missouri.

Platycrinus amabilis Miller.

1891. *Platycrinus amabilis*. Miller, Bull. Geol. Surv. Mo., No. 4., p. 19, pl. 2,
figs. 9, 10.
† Burlington Group: Sedalia, Missouri.

- Platyceras cyrtolites*. See *Orthonychia cyrtolites*.
Platyceras equilatera. See *Capulus equilateralis*.
Platyceras extinator. See *Igoceras pabulocrinus*.
Platyceras fissurellum. See *Igoceras fissurella*.
Platyceras formosum. See *Orthonychia formosum*.
Platyceras haliotoides. See *Capulus haliotoides*.
Platyceras herzeri. See *Capulus herzeri*.
Platyceras infundibulum. See *Igoceras pabulocrinus*.
Platyceras lævigatum. See *Capulus ovalis*.
Platyceras latum. See *Capulus latus*.
Platyceras lodiense. See *Capulus lodiensis*.
Platyceras missouriense. See *Igoceras quincyense*.
Platyceras nasutum. See *Capulus nasutum*.
Platyceras nebrascense. See *Capulus parvus*.
Platyceras obliquum. See *Capulus obliquus*.
Platyceras occidentens. See *Capulus occidentens*.
Platyceras paralius. See *Capulus paralius*.
Platyceras pettisense. See *Igoceras quincyense*.
Platyceras piso. See *Capulus piso*.
Platyceras quincyense. See *Igoceras quincyense*.
Platyceras reversum. See *Strophostylus reversus*.
Platyceras spinigerum. See *Capulus spinigerum*.
Platyceras subplicatum. See *Igoceras subplicatum*.
Platyceras subrectum. See *Igoceras pabulocrinus*.
Platyceras tortum. See *Naticopsis torta*.
Platyceras tribulosum. See *Capulus tribulosus*.
Platyceras unicum. See *Orthonychia acutirostre*.
Platyceras vomerium. See *Capulus vomerium*.
Platyceras (species undetermined). See *Capulus (species undetermined)*.

PLATYCRINUS Miller, 1821.

Platycrinus absentivus Miller.

1891. *Platycrinus absentivus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 15, pl. 1, fig. 15.
 Chouteau Group: Leucke's Quarry, 6 miles southeast of Sedalia, Missouri.
 1894. *Platycrinus absentivus*. Keyes, Mo. Geol. Surv., vol. 4, p. 196.
 Chouteau L. S.: Sedalia, Missouri.

Platycrinus acclivus Miller.

1891. *Platycrinus acclivus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 12, pl. 1, figs. 9, 10.
 Burlington Group: Near Sedalia, Missouri.
 1897. *Platycrinus acclivus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 668.
 Upper Burlington L. S.: Sedalia, Missouri.

Platycrinus æqualis Hall.

- *1861. *Platycrinus æqualis*. Hall, Desc. New Spec. Crin., p. 17.
Burlington L. S.
- 1873. *Platycrinites æqualis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 456,
pl. 3, fig. 8.
Burlington L. S.: Burlington, Iowa.
- 1891. *Platycrinus batiola*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 22, pl. 3, figs. 1, 2.
Burlington Group: Sedalia, Missouri.
- 1894. *Platycrinus æqualis*. Keyes, Mo. Geol. Surv., vol. 4, p. 200.
Burlington L. S.: Sedalia and Louisiana, Missouri.
- 1897. *Platycrinus æqualis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 674,
pl. 71, figs. 4a, b, 5.
Upper Burlington L. S.: Pleasant Grove and Burlington, Iowa.

Platycrinus æquitermus Miller.

- 1891. *Platycrinus æquitermus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 14, pl. 1,
fig. 13.
Chouteau L. S.: Near Sedalia, Missouri.
- 1891. *Platycrinus curryvillensis*. Rowley and Hare, The Kansas City Scientist,
vol. 5, p. 98, pl. 2, fig. 5.
Chouteau L. S.: 3 miles east of Curryville, Missouri.
- 1894. *Platycrinus æquitermus*. Keyes, Mo. Geol. Surv., vol. 4, p. 196.
Chouteau L. S.: Sedalia, Missouri.
- 1897. *Platycrinus æquitermus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 658, pl. 71, fig. 12.
Chouteau L. S.: Sedalia, Missouri.

Platycrinus æternalis. See *Platycrinus bonoensis*.**Platycrinus agassizi** Wachsmuth and Springer.

- 1890. *Platycrinus planus?* Wachsmuth and Springer, Geol. Surv. Ill., vol. 8,
p. 188, pl. 16, fig. 8.
Kinderhook Group: Le Grand, Iowa.
- 1897. *Platycrinus Agassizi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 669,
pl. 69, fig. 4.
Kinderhook Group: Le Grand, Marshall County, Iowa.

Platycrinus alabamensis. See *Platycrinus huntsvillæ*.**Platycrinus allophylus** Miller.

- 1891. *Platycrinus allophylus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 9, pl. 1,
figs. 3, 4.
Chouteau L. S.: Leucke's Quarry, 6 miles southeast of Sedalia, Missouri.
- 1894. *Platycrinus allophylus*. Keyes, Mo. Geol. Surv., vol. 4, p. 196.
Chouteau L. S.: Sedalia, Missouri.
- 1897. *Platycrinus allophylus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 685, pl. 71, fig. 17.
Chouteau L. S.: Near Sedalia, Missouri.

Platycrinus altidorsatus Rowley and Hare.

- 1891. *Platycrinus alti-dorsatus*. Rowley and Hare, The Kansas City Scientist,
vol. 5, p. 97, pl. 2, fig. 2.
Upper Burlington Chert: Louisiana, Missouri.

Platycrinus amabilis Miller.

- 1891. *Platycrinus amabilis*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 19, pl. 2,
figs. 9, 10.
† Burlington Group: Sedalia, Missouri.

Platycrinus americanus Owen and Shumard.

1852. *Platycrinus Americanus*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 89, pl. 11, fig. 1.
Carboniferous L. S.: Burlington, Iowa.
1852. *Platycrinus americanus*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 594, tab. 5 B, figs. 1a, b.
Carboniferous L. S.: Burlington, Iowa.
1858. *Platycrinus truncatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 537.
Burlington L. S.: Burlington, Iowa.
1891. *Platycrinus Broadheadi*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 21, pl. 2, fig. 15.
Burlington Group: Sedalia, Missouri.
1894. *Platycrinus americanus*. Keyes, Mo. Geol. Surv., vol. 4, p. 199, pl. 25, figs. 2a, b.
Lower Burlington L. S.: Sedalia, Louisiana, and Hannibal, Missouri; Kinderhook, Illinois; Burlington, Iowa.
1897. *Platycrinus americanus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 686, pl. 75, figs. 10-12, 13a-c.
Lower Burlington L. S.: Burlington, Iowa; Quincy, Illinois; Missouri.

Platycrinus annosus Miller.

1891. *Platycrinus annosus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 14, pl. 1, fig. 12.
Chouteau L. S.: Near Sedalia, Missouri.
1894. *Platycrinus annosus*. Keyes, Mo. Geol. Surv., vol. 4, p. 196.
Chouteau L. S.: Sedalia, Missouri.

Platycrinus asper Meek and Worthen.

1861. *Platycrinus (Pleurocrinus) asper*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 129.
Burlington L. S.: Burlington, Iowa.
1868. *Platycrinus (Pleurocrinus) asper*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 468, pl. 18, fig. 9.
Burlington Group: Burlington, Iowa.
1897. *Platycrinus asper*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 690, pl. 68, figs. 9a, b.
Upper Burlington L. S.: Burlington, Iowa.

Platycrinus batiola. See *Platycrinus æqualis*.**Platycrinus blairi** Miller.

1891. *Platycrinus Blairi*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 21, pl. 2, figs. 13, 14.
Burlington Group: Sedalia, Missouri.

Platycrinus bloomfieldensis. See *Platycrinus planus*.**Platycrinus bonoensis** White.

1878. *Platycrinus Bonoensis*. White, Proc. Acad. Nat. Sci. Phil., p. 30.
Keokuk Group: Bono, Lawrence County, Indiana.
1880. *Platycrinus bonoensis*. White, Cont. to Inv. Pal., No. 8, p. 160, pl. 40, fig. 5a.
Keokuk Group: Bono, Lawrence County, Indiana.
1891. *Platycrinus æternalis*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 11, pl. 1, fig. 8.
Keokuk Group: Boonville, Missouri.
1892. *Platycrinus caducous*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 13, pl. 2, fig. 13.
Keokuk Group: Boonville, Missouri.
1894. *Platycrinus caducous*. Miller, 18th Rep. Geol. Surv. Ind., p. 267, pl. 2, fig. 13.
Keokuk Group: Boonville, Missouri.
1894. *Platycrinus bonoensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 201,
Keokuk L. S.: Boonville, Missouri.

Platycrinus bonoensis White—Continued.

1897. *Platycrinus bonoensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 683, pl. 69, fig. 6.
Keokuk and Warsaw L. S.: Bono, Indiana; Boonville, Missouri.

Platycrinus boonvillensis Miller.

1891. *Platycrinus Boonvillensis*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 8, pl. 1, figs. 1, 2.
Keokuk Group: Boonville, Missouri.
1894. *Platycrinus boonvillensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 202.
Keokuk L. S.: Boonville, Missouri.
1897. *Platycrinus boonvillensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 681, pl. 72, figs. 8a, b, 9.
Warsaw L. S.: Boonville, Missouri; Spergen Hill, Indiana.

Platycrinus bozemanensis Miller and Gurley.

1897. *Platycrinus bozemanensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 42, pl. 3, fig. 5.
Burlington or Keokuk Group: Bridger Mountains, near Bozeman, Montana.

Platycrinus brevinodus Hall.

1861. *Platycrinus brevinodus*. Hall, Desc. New Spec. Crin., p. 4.
Burlington L. S.
1861. *Platycrinus brevinodus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 296.
Keokuk L. S.: Keokuk, Iowa.
1872. *Platycrinus brevinodus*. Hall, Photo. Plates of Crinoids, pl. 2, fig. 5.
1897. *Platycrinus brevinodus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 688, pl. 70, figs. 2, 5, 6a, b.
Keokuk Group: Keokuk, Iowa; Indian Creek, Indiana.
Burlington Keokuk transition bed: near Burlington, Iowa.

Platycrinus bridgerensis Miller and Gurley.

1897. *Platycrinus bridgerensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 43, pl. 3, fig. 8.
Burlington or Keokuk Group: Bridger Mountains, near Bozeman, Montana.

Platycrinus brittsi Miller.

1891. *Platycrinus Brittsi*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 23, pl. 3, figs. 3, 4.
Chouteau Group: Pin Hook Bridge, Missouri.
1894. *Platycrinus brittsi*. Keyes, Mo. Geol. Surv., vol. 4, p. 195.
Chouteau L. S.: Sedalia, Missouri.
1897. *Platycrinus Britsi*. Wachsmuth and Springer, N. Am. Crin., p. 659, pl. 71, fig. 10.
Chouteau Group: Pin Hook Bridge, Missouri.

Platycrinus broadheadi. See *Platycrinus americanus*.**Platycrinus burlingtonensis** Owen and Shumard.

1850. *Platycrinus Burlingtonensis*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 60, pl. 7, fig. 5.
Subcarboniferous L. S.: Burlington, Iowa.
1852. *Platycrinus burlingtonensis*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 589, tab. 5 A, fig. 5.
Subcarboniferous L. S.: Burlington, Iowa.
1858. *Platycrinus exertus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 539.
Burlington L. S.: Burlington, Iowa.
1858. *Platycrinus nodobrachiatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 542.
Burlington L. S.: Burlington, Iowa.
1858. *Platycrinus nucleiformis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 540.
Burlington L. S.: Burlington, Iowa.

Platycrinus burlingtonensis Owen and Shumard—Continued.

1860. *Platycrinus inornatus*. McChesney, Desc. New Pal. Foss., p. 6.
Burlington L. S.: Burlington, Iowa; Monmouth, Illinois.
1865. *Platycrinus inornatus*. McChesney, Ill. New Spec. Foss., pl. 4, figs. 3a-b.
1868. *Platycrinus burlingtonensis*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 4, pl. 4, figs. 3a, b.
Burlington L. S.: Monmouth, Illinois.
1873. *Platycrinites Burlingtonensis*. Meek and Worthen, Geol. Surv., Ill., vol. 5, p. 452, pl. 3, fig. 6.
Burlington L. S.: Burlington, Iowa.
1891. *Platycrinus laetus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 17, pl. 2, figs. 3, 4.
Burlington Group: Sedalia, Missouri.
1894. *Platycrinus burlingtonensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 200.
Lower Burlington L. S.: Sedalia and Hannibal, Missouri.
1897. *Platycrinus burlingtonensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 653, pl. 69, figs. 3a-i.
Lower Burlington L. S.: Burlington, Iowa; Missouri; New Mexico.

Platycrinus caducus. See *Platycrinus bonoensis*.

Platycrinus calyculus Hall.

- *1861. *Platycrinus calyculus*. Hall, Desc. New Spec. Crin., p. 16.
Burlington L. S.

Platycrinus canaliculatus Hall.

1858. *Platycrinus canaliculatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 539.
Burlington L. S.: Burlington, Iowa.
1897. *Platycrinus canaliculatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 689, pl. 75, figs. 7a, b.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus carchesium. See *Platycrinus pileiformis*.

Platycrinus casula Miller and Gurley.

1895. *Platycrinus casula*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 76, pl. 4, figs. 37-40.
Burlington Group: Sedalia, Missouri.

Platycrinus cavus Hall.

1858. *Platycrinus cavus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 527, pl. 8, figs. 1a, b.
Burlington L. S.: Burlington, Iowa.
1897. *Platycrinus cavus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 715, pl. 67, figs. 8a, b.
Upper Burlington L. S.: Burlington, Iowa.

Platycrinus chouteauensis Miller.

1892. *Platycrinus chouteauensis*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 14, pl. 2, figs. 14, 15.
Chouteau L. S.: Sedalia, Mo.
1894. *Platycrinus chouteauensis*. Miller, 18th Rep. Geol. Surv. Ind., p. 268, pl. 2, figs. 14, 15.
Chouteau L. S.: Sedalia, Missouri.

Platycrinus clinatus Miller and Gurley.

1895. *Platycrinus clinatus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 74, pl. 4, figs. 26-30.
Chouteau L. S.: Sedalia, Missouri.

Platycrinus clytis. See *Platycrinus scobina*.

Platycrinus colletti Miller.

1892. *Platycrinus colletti*. Miller. Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 14, pl. 2, figs. 16, 17.

Chouteau L. S.: Near Sedalia, Missouri.

1894. *Platycrinus colletti*. Miller, 18th Rep. Geol. Surv. Ind., p. 268, pl. 2, figs. 16, 17.

Chouteau L. S.: Near Sedalia, Missouri.

Platycrinus concinnulus Miller and Gurley.

1896. *Platycrinus concinnulus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 63, pl. 4, figs. 16-18.

Burlington Group: Sedalia, Missouri.

Platycrinus concinnus Miller.

1891. *Platycrinus concinnus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 18, pl. 2, figs. 5, 6.

Burlington Group: Sedalia, Missouri.

Platycrinus contritus Hall.

1864. *Platycrinus contritus*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 54.

Waverly Group: Richfield, Ohio.

1875. *Platycrinus contritus*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 166, pl. 11, fig. 4.

Waverly Group: Richfield, Ohio.

1897. *Platycrinus contritus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 667, pl. 71, fig. 8.

Waverly Group: Richfield, Ohio.

Platycrinus corbuliformis Rowley and Hare.

1891. *Platycrinus corbuliformis*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 113, pl. 3, figs. 1, 2.

Lower Burlington L. S.: Louisiana, Missouri.

1897. *Platycrinus corbuliformis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 667, pl. 71, figs. 11a, b.

Lower Burlington L. S.: Burlington, Iowa.

Platycrinus corrugatus. See *Platycrinus discoidens*.**Platycrinus cortina** Miller and Gurley.

1894. *Platycrinus cortina*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 40, pl. 3, figs. 15, 16.

Chouteau L. S.: Sedalia, Missouri.

Platycrinus curryvillensis. See *Platycrinus æquitermus*.**Platycrinus davisii** Wachsmuth and Springer.

1897. *Platycrinus Davisii*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 684, pl. 70, fig. 14.

Lower Burlington L. S.: Hannibal, Missouri.

Platycrinus discoidens Owen and Shumard.

1850. *Platycrinus discoidens*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2) vol. 2, p. 58, pl. 7, fig. 1.

Subcarboniferous: Burlington and Augusta, Iowa.

1850. *Platycrinus corrugatus*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 59, pl. 7, fig. 2.

Subcarboniferous: Burlington, Iowa.

1852. *Platycrinus discoidens*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 588, tab. 5 A, figs. 1a, b.

Subcarboniferous L. S.: Burlington and Augusta, Iowa.

Platycrinus discoideus Owen and Shumard—Continued.

1852. *Platycrinus corrugatus*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 289, tab. 5 A, figs. 2a-c.
Subcarboniferous L. S.: Burlington, Iowa.
1858. *Platycrinus shumardanus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 532, pl. 8, fig. 6.
Burlington L. S.: Burlington, Iowa.
1861. *Platycrinus striobrachiatus*. Hall, Desc. New Crin., p. 4.
Burlington L. S.
1861. *Platycrinus striobrachiatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 287.
Burlington L. S.: Burlington, Iowa.
1861. *Platycrinus multi-brachiatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 135.
Burlington L. S.: Burlington, Iowa.
1872. *Platycrinus striobrachiatus*. Hall, Photo. Plates of Crinoids, pl. 2, figs. 2, 3.
1891. *Platycrinus pulcellus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 11, pl. 1, fig. 7.
Burlington Group: Near Sedalia, Missouri.
1893. *Platycrinus striobrachiatus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 4, pl. 3, figs. 2-4.
Burlington L. S.: Burlington, Iowa.
1894. *Platycrinus discoideus*. Keyes, Mo. Geol. Surv., vol. 4, p. 197.
Lower Burlington L. S.: Hannibal, Louisiana, and Sedalia, Missouri.
1897. *Platycrinus discoideus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 713, pl. 3, fig. 17; pl. 66, figs. 10a-c.
Lower Burlington L. S.: Burlington, Iowa; Missouri; New Mexico.
- Also see *Eucladocrinus pleurorimetus*.

Platycrinus douglassi Miller and Gurley.

1896. *Platycrinus douglassi*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 86, pl. 5, figs. 18, 19.
Subcarboniferous: Bridger Mountains, Bozeman, Montana.

Platycrinus elegans Hall.

1861. *Platycrinus elegans*. Hall, Desc. New Spec. Crin., p. 4.
Burlington L. S.
1861. *Platycrinus elegans*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 285.
Burlington L. S.: Burlington, Iowa.
1872. *Platycrinus elegans*. Hall, Photo. Plates of Crinoids, pl. 2, fig. 15.
1893. *Platycrinus elegans*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 3, pl. 3, fig. 1.
Burlington L. S.: Burlington, Iowa.

Platycrinus eminulus Hall.

- *1861. *Platycrinus eminulus*. Hall, Desc. New Spec. Crin., p. 17.
Burlington L. S.
1897. *Platycrinus eminulus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 712, pl. 68, figs. 13a-c.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus excavatus Hall.

1861. *Platycrinus excavatus*. Hall, Desc. New Spec. Crin., p. 4.
Burlington L. S.
1861. *Platycrinus excavatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 286.
Burlington L. S.: Burlington, Iowa.
1872. *Platycrinus excavatus*. Hall, Photo. Plates of Crinoids, pl. 2, fig. 1.
1891. *Platycrinus sulcatus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 16, pl. 2, fig. 2.
Burlington Group: Sedalia, Missouri.
1893. *Platycrinus excavatus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 3, pl. 3, fig. 5.
Burlington L. S.: Burlington, Iowa.

Platycrinus excavatus Hall—Continued.

1897. *Platycrinus excavatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 718, pl. 66, fig. 4.

Lower Burlington L. S.: Burlington, Iowa.

Platycrinus exsertus. See *Platycrinus burlingtonensis*.**Platycrinus faberi Miller.**

1889. *Platycrinus faberi*. Miller, N. A. Geol. and Pal., p. 270, fig. 393.

St. Louis or Kaskaskia Group: Scott County, West Virginia.

Platycrinus formosus Miller and Gurley.

1895. *Platycrinus formosus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 72, pl. 4, figs. 20, 21.

Burlington Group: Sedalia, Missouri.

Platycrinus formosus var. approximatus Miller and Gurley.

1896. *Platycrinus formosus* var. *approximatus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 60, pl. 4, figs. 8-11.

Burlington Group, Sedalia, Missouri.

Platycrinus geometricus Wachsmuth and Springer.

1897. *Platycrinus geometricus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 697, pl. 67, fig. 10; pl. 68, fig. 8.

Upper Burlington L. S.: Burlington, Iowa.

Platycrinus georgii. See *Platycrinus saræ*.**Platycrinus germanus Miller and Gurley.**

1895. *Platycrinus germanus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 78, pl. 4, figs. 46, 47.

Chouteau Group: Sedalia, Missouri.

Platycrinus glyptus Hall.

- * 1861. *Platycrinus glyptus*. Hall, Desc. New Spec. Crin., p. 16.

Burlington L. S.

1897. *Platycrinus glyptus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 693, pl. 67, figs. 4, 5.

Upper Burlington L. S.: Burlington, Iowa.

Platycrinus gorbyi Miller.

1891. *Platycrinus Gorbyi*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 15, pl. 1, fig. 14.

Burlington L. S.: Sedalia, Missouri.

1897. *Platycrinus Gorbyi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 716, pl. 68, fig. 15.

Lower Burlington L. S.: Burlington, Iowa; Sedalia, Missouri.

Platycrinus graphicus Hall.

1864. *Platycrinus graphicus*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 55.

Waverly Group: Richfield, Ohio.

1875. *Platycrinus graphicus*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 166, pl. 11, fig. 2.

Waverly Group: Richfield, Ohio.

1875. *Platycrinus Richfieldensis*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 167, pl. 11, fig. 1.

Waverly Group: Richfield, Ohio.

1897. *Platycrinus graphicus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 672, pl. 71, fig. 7.

Waverly Group: Richfield, Ohio.

Platycrinus halli Shumard.

1858. *Platycrinus planus*? Hall, Geol. Iowa, vol. 1, pt. 2, p. 533, pl. 8, figs. 6a, b.
(Not *P. planus* O. and S. 1850.)

Burlington L. S.: Burlington, Iowa.

Platycrinus halli Shumard—(Continued.)

- * 1861. *Platycrinus olla*. Hall, Desc. New Spec. Crin., p. 16. (Not *P. olla* De Koninck and Lehon.)
Burlington L. S.
- 1866. *Platycrinus Halli*. Shumard, Trans. St. Louis Acad. Sci., vol. 2, p. 388.
- 1873. *Platycrinites Halli?* Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 454, pl. 3, fig. 3.
Burlington L. S.: Burlington, Iowa.
- 1394. *Platycrinus halli*. Keyes, Mo. Geol. Surv., vol. 4, p. 201, pl. 25, fig. 3.
Upper Burlington L. S.: Ash Grove, Missouri; Burlington, Iowa.
- 1897. *Platycrinus Halli*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 662, pl. 72, figs. 6a, b; 7a, b.
Upper Burlington L. S.: Burlington, Iowa.

Platycrinus haydeni Meek.

- 1873. *Platycrinites Haydeni*. Meek, U. S. Geol. Surv. Mont., Idaho, Wyo., and Utah, p. 469.
Carboniferous: "Old Baldy," near Virginia City, Montana.
- 1880. *Platycrinus haydeni*. White, Cont. to Inv. Pal. No. 6, p. 122, pl. 33, fig. 7a.
Carboniferous: "Old Baldy" Mountain, near Virginia City, Montana.

Platycrinus hemisphericus Meek and Worthen.

- 1865. *Platycrinus hemisphericus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 162.
Keokuk Group: Crawfordsville, Indiana.
- 1868. *Platycrinus hemisphericus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 511, pl. 20, figs. 2a, b.
Keokuk Group: Crawfordsville, Indiana.
- 1873. *Platycrinites hemisphericus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 506, pl. 16, figs. 6a-c.
Keokuk Group: Crawfordsville, Indiana.
- 1882. *Platycrinus hemisphericus*. White, 11th Rep. Geol. Surv. Ind., p. 368, pl. 41, fig. 1.
Keokuk Group: Crawfordsville, Indiana.
- 1897. *Platycrinus hemisphericus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 703, pl. 66, figs. 1a-d.
Keokuk Group: Crawfordsville, Indiana; Keokuk, Iowa.

Platycrinus hodgsoni Miller and Gurley.

- 1896. *Platycrinus hodgsoni*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 63, pl. 5, figs. 8, 9.
Burlington Group: Adams County, Illinois.

Platycrinus huntsvillæ Troost, MS.

- 1849. *Platycrinus Huntsvillæ*. Troost, Proc. Am. Ass. Adv. Sci., p. 61.
- 1860. *Platycrinus penicillus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 380.
St. Louis L. S.: Hardin County, Illinois.
- 1860. *Platycrinus plenus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 380.
St. Louis L. S.: Hardin County, Illinois.
- 1866. *Platycrinus penicillus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 266, pl. 19, figs. 6a-c.
St. Louis Group: Hardin County, Illinois.
- 1866. *Platycrinus plenus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 267, pl. 20, fig. 3.
St. Louis Group: Hardin County, Illinois.
- 1891. *Platycrinus alabamensis*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 50, pl. 9, fig. 5.
Subcarboniferous: Huntsville, Alabama.

Platycrinus huntsvillæ Troost, MS.—Continued.

1892. *Platycrinus alabamensis*. Miller, 17th Rep. Geol. Surv. Ind., p. 660, pl. 9, fig. 5.

Subcarboniferous: Huntsville, Alabama.

1897. *Platycrinus Huntsvillæ*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 678, pl. 73, figs. 6, 7a, b, 8-12.

St. Louis L. S.: Huntsville, Alabama; Hardin County, Illinois.

Platycrinus illinoisensis Miller and Gurley.

1896. *Platycrinus illinoisensis*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 62, pl. 5, figs. 5-7.

Burlington Group: Adams County, Illinois.

Platycrinus incomptus White.

- *1860. *Platycrinus incomptus*. White, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 503.

Burlington L. S.: Burlington, Iowa.

1873. *Platycrinites incomptus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 459, pl. 3, fig. 7.

Burlington L. S.: Burlington, Iowa.

1897. *Platycrinus incomptus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 664, pl. 71, figs. 1-3; pl. 67, fig. 6.

Upper Burlington L. S.: Burlington, Iowa.

Platycrinus inornatus. See *Platycrinus burlingtonensis*.

Platycrinus insolens Rowley and Hare.

1891. *Platycrinus insolens*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 98, pl. 2, fig. 4.

Chouteau L. S.: 3 miles southeast of Curryville, Missouri.

1897. *Platycrinus insolens*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 659, pl. 71, fig. 15.

Chouteau L. S.: Near Curryville, Missouri.

Platycrinus lautus. See *Platycrinus burlingtonensis*.

Platycrinus lodensis Hall and Whitfield.

1875. *Platycrinus Lodensis*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 168, pl. 11, fig. 3.

Cuyahoga Shale: Medina County, Ohio.

1897. *Platycrinus lodensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 666, pl. 71, fig. 6.

Cuyahoga Shale: Lodi and Royalton, Ohio.

Platycrinus marginatus Rowley and Hare.

1891. *Platycrinus marginatus*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 98, pl. 2, fig. 3.

Upper Burlington L. S.: Spencer Creek, 2 miles north of Curryville, Missouri.

Platycrinus missouriensis Miller and Gurley.

1895. *Platycrinus missouriensis*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 73, pl. 4, figs. 22, 23.

Chouteau L. S.: Near Sedalia, Missouri.

Platycrinus modestus Miller and Gurley.

1895. *Platycrinus modestus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 77, pl. 4, figs. 43-45.

Burlington Group: Sedalia, Missouri.

Platycrinus monroensis. See *Platycrinus saræ*.

Platycrinus montanensis. See *Eucladocrinus montanensis*.

Platycrinus multibrachiatus. See *Platycrinus discoideus*.

***Platycrinus niotensis* Meek and Worthen.**

1865. *Platycrinus Niotensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 162.
Keokuk L. S.: Niota, Hancock County, Illinois.

1868. *Platycrinus Niotensis*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 513,
pl. 20, fig. 3.

Keokuk L. S.: Niota, Hancock County, Illinois.

1897. *Platycrinus niotensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 682,
pl. 71, fig. 9.

Keokuk Group: Niota, Illinois; Indian Creek and Canton, Indiana.

Platycrinus nodobrachiatus. See *Platycrinus burlingtonensis*.

***Platycrinus nodostriatus* Wachsmuth and Springer.**

1897. *Platycrinus nodo-striatus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 698, pl. 66, figs. 5a, b; pl. 70, figs. 3, 4a-c.

Upper Burlington L. S.: Burlington, Iowa.

Platycrinus nodulosus. See *Platyceras ornogranulus*.

Platycrinus nucleiformis. See *Platycrinus burlingtonensis*.

Platycrinus occidentalis. See *Eucladocrinus tuberosus*.

Platycrinus olla. See *Platycrinus halli*.

***Platycrinus ollicula* Miller.**

1891. *Platycrinus ollicula*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 19, pl. 2,
figs. 7, 8.

Chouteau Group: Pin Hook Bridge and at Leucke's Quarry, near Sedalia,
Missouri.

1894. *Platycrinus ollicula*. Keyes, Mo. Geol. Surv., vol. 4, p. 195.

Chouteau L. S.: Sedalia, Missouri.

1897. *Platycrinus ollicula*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 667.

Chouteau L. S.: Pin Hook Bridge and at Leucke's Quarry, near Sedalia,
Missouri.

***Platycrinus ornogranulus* McChesney.**

1858. *Platycrinus nodulosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 541. (Not *P.*
nodulosus Goldfuss, 1833.)

Burlington L. S.: Burlington, Iowa.

1860. *Platycrinus ornogranulus*. McChesney, Desc. New Pal. Foss., p. 5.

Burlington L. S.: Burlington, Iowa.

1865. *Platycrinus ornogranulus*. McChesney, Ill. New Spec. Foss., pl. 2, figs. 11a, b.

1868. *Platycrinus ornogranulus*. McChesney, Trans. Chicago Acad. Sci., vol. 1,
p. 3, pl. 5, fig. 8.

Burlington L. S.: Burlington, Iowa.

1897. *Platycrinus ornogranulus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 701, pl. 66, fig. 8; pl. 68, figs. 10a-c, 11a, b, 12a, b.

Lower Burlington L. S.: Burlington, Iowa.

Platycrinus oweni. See *Platycrinus regalis*.

***Platycrinus parvinodus* Hall.**

*1861. *Platycrinus parvinodus*. Hall, Desc. New Spec. Crin., p. 17.

Burlington L. S.

1897. *Platycrinus parvinodus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 696, pl. 68, figs. 6a, b.

Lower Burlington L. S.: Burlington, Iowa.

***Platycrinus parvulus* Meek and Worthen.**

1865. *Platycrinus parvulus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 163.

Chester Group: Pope County, Illinois.

Platycrinus parvulus Meek and Worthen—Continued.

1873. *Platycrinites parvulus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 555, pl. 20 fig. 7.

Chester Group: Pope County, Illinois.

Platycrinus peculiaris Wachsmuth and Springer.

1897. *Platycrinus peculiaris*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 700, pl. 68, figs. 7a, b

Lower Burlington L. S.: Lake Valley, New Mexico.

Platycrinus penicillus. See *Platycrinus huntsvillæ*.**Platycrinus pentagonus** Miller.

1891. *Platycrinus pentagonus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 16, pl. 2, fig. 1.

Keokuk Group: Boonville, Missouri.

Platycrinus perasper. See *Platycrinus yandelli* var. *perasper*.**Platycrinus pettisensis** Miller and Gurley.

1896. *Platycrinus pettisensis*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 73, pl. 4, figs. 24, 25.

Chouteau L. S.: Near Sedalia, Missouri.

Platycrinus pileiformis Hall.

1858. *Platycrinus pileiformis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 529, pl. 8, figs. 3a-c. Burlington L. S.: Burlington, Iowa.

1891. *Platycrinus carchesium*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 23, pl. 3, figs. 6, 7.

Burlington Group: Sedalia, Missouri.

1894. *Platycrinus pileiformis*. Keyes, Mo. Geol. Surv., vol. 4, p. 198, pl. 25, fig. 5.

Lower Burlington L. S.: Sedalia and Hannibal, Missouri; Kinderhook, Illinois.

1897. *Platycrinus pileiformis*. Wachsmuth and Springer, N. Am. Crin., p. 656, pl. 69, fig. 5; pl. 70, figs. 13a, b.

Lower Burlington L. S.: Burlington, Iowa; Sedalia and Hannibal, Missouri.

Platycrinus pisum Rowley and Hare.

1891. *Platycrinus pisum*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 113, pl. 3, fig. 3.

Lower Burlington L. S.: Louisiana, Missouri.

1897. *Platycrinus pisum*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 660, pl. 71, figs. 13a, b.

Lower Burlington L. S.: Louisiana, Missouri.

Platycrinus planobasalis. See *Platycrinus quinquenodus*.**Platycrinus planus** Owen and Shumard.

1850. *Platycrinus planus*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 57, pl. 7, figs. 4a-c.

Subcarboniferous: Burlington, Iowa.

1852. *Platycrinus planus*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 587, tab. 5A, figs. 4a-c.

Subcarboniferous L. S.: Burlington, Iowa; Button-mould Knob, Kentucky.

1873. *Platycrinites planus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 452, pl. 3, figs. 5a, c. (not b. = *P. pratteni*.)

Burlington L. S.: (Burlington, Iowa).

1880. *Platycrinus bloomfieldensis*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 257, pl. 15, fig. 4.

Keokuk Group: New Bloomfield, Missouri.

Platycrinus planus Owen and Shumard—Continued.

1897. *Platycrinus planus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 668, pl. 69, figs. 2a-d.

Lower Burlington L. S.: Burlington, Iowa; Hannibal and Sedalia, Missouri.

Also see *Platycrinus halli*, *Platycrinus pratteni*, and *Platycrinus agassizi*.

Platycrinus plenus. See *Platycrinus huntsvillæ*.

Platycrinus pleurovimenus. See *Eucladocrinus pleurovimenus*.

Platycrinus pocilliformis Hall.

1858. *Platycrinus pocilliformis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 528, pl. 8, figs. 2a, b.

Burlington L. S.: Burlington, Iowa.

1897. *Platycrinus pocilliformis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 706, pl. 68, figs. 2a, b.

Lower Burlington L. S.: Burlington, Iowa.

Platycrinus poculum Miller.

1881. *Platycrinus poculum*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 311, pl. 7, fig. 4.

Subcarboniferous: Lake Valley Mining District, New Mexico.

Platycrinus prænuntius. See *Eucladocrinus prænuntius*.

Platycrinus prattenanus. See *Platycrinus saræ*.

Platycrinus pratteni Worthen.

1868. *Platycrinus planus*? Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 467, pl. 16, fig. 6.

Burlington Group: Burlington, Iowa.

1860. *Platycrinus Pratteni*. Worthen, Trans. St. Louis Acad. Sci., vol. 1, p. 569.

Brown Crinoidal L. S.: Burlington, Iowa.

1894. *Platycrinus pratteni*. Keyes, Mo. Geol. Surv., vol. 4, p. 198.

Lower Burlington L. S.: Sedalia, Missouri.

1897. *Platycrinus Pratteni*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 671, pl. 70, figs. 11, 12.

Lower Burlington L. S.: Burlington, Iowa.

Platycrinus pulchellus. See *Platycrinus discoideus*.

Platycrinus pumilis Hall.

1860. *Platycrinus pumilis*. Hall, Supp., vol. 1, pt. 2, Geol. Rep. Ia., p. 82, pl. 1, fig. 6.

Warsaw L. S.: Warsaw, Illinois.

Platycrinus quinquenodus White.

1862. *Platycrinus quinquenodus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 18.

Upper Burlington L. S.: Burlington, Iowa.

1891. *Platycrinus plano-basalis*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 97, pl. 2, fig. 1.

Upper Burlington L. S.: Spencer Creek, 2 miles north of Curryville, Missouri.

1897. *Platycrinus quinquenodus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 661, pl. 71, figs. 14a-c.

Upper Burlington L. S.: Burlington, Iowa.

Platycrinus regalis Hall.

- *1861. *Platycrinus regalis*. Hall, Desc. New Spec. Crin., p. 16.

Burlington L. S.

Platycrinus regalis Hall—Continued.

1861. *Platycrinus Oweni*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 128.
Burlington L. S.: Burlington, Iowa.
1872. *Platycrinus regalis*. Hall, Photo. Plates of Crinoids, pl. 2, fig. 6.
1897. *Platycrinus regalis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 710,
pl. 72, figs. 1, 2.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus richfieldensis. See *Platycrinus graphicus*.

Platycrinus rotundus. See *Platycrinus sculptus*.

Platycrinus saffordi Hall.

1858. *Platycrinus saffordi*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 634, pl. 18, figs. 5, 6.
Keokuk L. S.: Warsaw, Illinois.
1894. *Platycrinus saffordi*. Keyes, Mo. Geol. Surv., vol. 4, p. 202, pl. 25, fig. 1.
Keokuk L. S.: Wayland, Missouri; Warsaw, Illinois.
1897. *Platycrinus Saffordi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 694,
pl. 67, figs. 1-3.
Upper Burlington L. S. and Keokuk Group: Indian Creek, Montgomery
County, Indiana; Keokuk, Iowa; Kentucky; Tennessee; Illinois;
Missouri.

Platycrinus sampsoni Miller.

1891. *Platycrinus Sampsoni*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 13, pl. 1, fig. 11.
Burlington Group: Near Sedalia, Missouri.
1894. *Platycrinus sampsoni*. Keyes, Mo. Geol. Surv., vol. 4, p. 199.
Burlington L. S.: Ash Grove and Sedalia, Missouri; Burlington, Iowa.
1897. *Platycrinus Sampsoni*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 673,
pl. 70, fig. 10.
Upper Burlington L. S.: Burlington, Iowa; Sedalia, Missouri.

Platycrinus saræ Hall.

1858. *Platycrinus saræ*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 673, pl. 17, fig. 4.
St. Louis L. S.: Near St. Louis, Missouri.
1860. *Platycrinus georgii*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 82, pl. 1,
fig. 7.
Warsaw L. S.: Warsaw, Illinois.
1860. *Platycrinus Prattenanus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 379.
St. Louis L. S.: Randolph County, Illinois.
1866. *Platycrinus Prattenanus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 264,
pl. 20, fig. 2.
St. Louis Group: Randolph County, Illinois.
1882. *Platycrinus monroensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist.,
p. 30.
St. Louis L. S.: Monroe County, Illinois; Blount County, Tennessee.
1883. *Platycrinus Monroensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 306, pl. 30, fig. 9.
St. Louis L. S.: Monroe County, Illinois; Blount County, Tennessee.
1894. *Platycrinus saræ*. Keyes, Mo. Geol. Surv., vol. 4, p. 202.
St. Louis L. S.: St. Louis, Missouri.
1897. *Platycrinus Saræ*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 677,
pl. 69, fig. 7; pl. 70, fig. 1.
St. Louis Group: St. Louis, Missouri; Jersey County, Illinois.

Platycrinus scobina Meek and Worthen.

1861. *Platycrinus scobina*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 129.
Burlington L. S.: Burlington, Iowa.
1861. *Platycrinus clytis*. Hall, Desc. New Spec. Crin., p. 4.
Burlington L. S.

Platycrinus scobina Meek and Worthen—Continued.

1861. *Platycrinus clytis*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 285.
Burlington L. S.: Burlington, Iowa.
1868. *Platycrinus scobina*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 466,
pl. 16, fig. 9.
Burlington Group: Burlington, Iowa.
1872. *Platycrinus clytis*. Hall, Photo. Plates of Crinoids, pl. 2, fig. 4.
1893. *Platycrinus clytis*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 2, pl. 3,
fig. 6.
Burlington L. S.: Burlington, Iowa.
1897. *Platycrinus scobina*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 695,
pl. 68, figs. 14a, b.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus sculptus Hall.

1858. *Platycrinus sculptus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 536, pl. 8, fig. 11.
Burlington L. S.: Burlington, Iowa.
1891. *Platycrinus rotundus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 20, pl. 2,
figs. 11, 12. *
Burlington Group: Sedalia, Missouri.
1894. *Platycrinus sculptus*. Keyes, Mo. Geol. Surv., vol. 4, p. 200.
Lower Burlington L. S.: Sedalia, Missouri.
1897. *Platycrinus sculptus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 691,
pl. 68, fig. 5; pl. 75, figs. 8, 9.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus semifusus Miller and Gurley.

1895. *Platycrinus semifusus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat.
Hist., p. 77, pl. 4, figs. 41, 42.
Burlington Group: Sedalia, Missouri.

Platycrinus sharonensis Miller and Gurley.

1897. *Platycrinus sharonensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat.
Hist., p. 42, pl. 3, figs. 6, 7.
Burlington Group: Near Sharon, Missouri.

Platycrinus shumardanus. See Platycrinus discoideus.**Platycrinus spinifer Wachsmuth and Springer.**

1897. *Platycrinus spinifer*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 708,
pl. 66, fig. 7.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus spinifer var. elongatus Wachsmuth and Springer.

1897. *Platycrinus spinifer* var. *elongatus*. Wachsmuth and Springer, N. Am. Crin.
Cam., p. 709, pl. 67, fig. 7.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus striobrachiatus. See Platycrinus corrugatus.**Platycrinus subscitulus Miller and Gurley.**

1896. *Platycrinus subscitulus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat.
Hist., p. 62, pl. 4, figs. 12-15.
Burlington Group: Sedalia, Missouri.

Platycrinus subspinosus Hall.

1858. *Platycrinus subspinosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 536, pl. 8, figs. 9, 10.
Burlington L. S.: Burlington, Iowa.
1866. *Platycrinus subspinosus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 173,
pl. 15, fig. 6.
Burlington L. S.: Burlington, Iowa.

Platycrinus subspinosus Hall—Continued.

1873. *Platycrinites subspinosus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 452, pl. 11, fig. 2.
Burlington L. S.: Burlington, Iowa.
1894. *Platycrinus subspinosus*. Keyes, Mo. Geol. Surv., vol. 4, p. 197.
Lower Burlington L. S.: Louisiana and Sedalia, Missouri.
1897. *Platycrinus subspinosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 717, pl. 66, figs. 9a, b.
Lower Burlington, L. S.: Burlington, Iowa; Lake Valley, New Mexico.

Platycrinus subspinulosus Hall.

1860. *Platycrinus subspinulosus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 81, Burlington L. S.: Burlington, Iowa.
1897. *Platycrinus subspinulosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 684, pl. 66, figs. 2a, b; pl. 70, fig. 9.
Upper Burlington L. S.: Burlington, Iowa.

Platycrinus sulcatus. See *Platycrinus excavatus*.

Platycrinus sulciferus Miller and Gurley.

1895. *Platycrinus sulciferus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 75, pl. 4, figs. 33, 34.
Burlington Group: Sedalia, Missouri.

Platycrinus symmetricus Wachsmuth and Springer.

1890. *Platycrinus symmetricus*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 186, pl. 15, fig. 8.
Kinderhook Group: Le Grand, Iowa.
1897. *Platycrinus symmetricus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 655, pl. 3, fig. 16; pl. 69, figs. 1a-c.
Kinderhook Group: Le Grand, Marshall County, Iowa.

Platycrinus tenuibrachiatus Meek and Worthen.

1869. *Platycrinites tenuibrachiatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 168.
Upper Burlington L. S.: Burlington, Iowa.
1873. *Platycrinites tenuibrachiatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 450, pl. 3, fig. 4.
Burlington L. S.: Burlington, Iowa.
1897. *Platycrinus tenuibrachiatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 687, pl. 70, figs. 7, 8.
Upper Burlington L. S.: Burlington, Iowa.

Platycrinus truncatulus Hall.

1858. *Platycrinus truncatulus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 538.
Burlington L. S.: Burlington, Iowa.
1897. *Platycrinus truncatulus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 675, pl. 67, figs. 11a, b; pl. 71, figs. 18a, b.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus truncatus. See *Platycrinus americanus*.

Platycrinus tuberosus. See *Eucladocrinus tuberosus*.

Platycrinus tugurium Miller and Gurley.

1895. *Platycrinus tugurium*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 70, pl. 4, figs. 17-19.
Burlington L. S.: Sedalia, Missouri.

Platycrinus vascellum Miller and Gurley.

1895. *Platycrinus vascellum*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 32, pl. 2, figs. 17, 18.
Keokuk Group: Tennessee.

Platycrinus verrucosus White.

1862. *Platycrinus verrucosus*. White, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 502.
Burlington L. S.: Burlington, Iowa.
1897. *Platycrinus verrucosus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 705, pl. 66, figs. 3a, b; pl. 68, figs. 1a-d.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus wortheni Hall.

1858. *Platycrinus wortheni*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 530, pl. 8, fig. 4.
Burlington L. S.: Burlington, Iowa.
1897. *Platycrinus Wortheni*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 702,
pl. 67, fig. 9.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus yandelli Owen and Shumard.

1850. *Platycrinus Yandelli*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2),
vol. 2, p. 58, pl. 7, figs. 6a, b.
Subcarboniferous: Burlington, Iowa.
1852. *Platycrinus yandelli*. Owen and Shumard, Geol. Rep. Wis., Iowa, and
Minn., p. 587, tab. 5A, figs. 6a, b.
Subcarboniferous L. S.: Burlington, Iowa; Salem, Indiana.
1897. *Platycrinus Yandelli*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 706,
pl. 66, figs. 6a-c; pl. 68, figs. 3a-c.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus yandelli var. perasper Meek and Worthen.

- *1861. *Platycrinus nodobrachiatus*. Hall, Desc. New Spec. Crin., p. 17. (Not *P.*
nodobrachiatus Hall, 1858.)
Burlington L. S.
1865. *Platycrinus perasper*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 161.
1897. *Platycrinus Yandelli*, var. *perasper*. Wachsmuth and Springer, N. Am. Crin.
Cam., p. 708, pl. 68, figs. 4a, b.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus (species undetermined).

1874. *Platycrinus* — ? — White, Prelim. Rep. Inv. Foss., p. 15.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
1877. *Platycrinus* — (?) White, U. S. Geog. Surv., W. 100 Merid., vol. 4, p. 81,
pl. 5, fig. 2.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.

PLATYSCHISMA McCoy, 1844.**Platyschisma dubium Dawson.**

1868. *Platyschisma dubia*. Dawson, Acad. Geol., p. 309, fig. 121.
Carboniferous L. S.: Windsor, Nova Scotia.

Platyschisma helicoides Meek and Worthen.

1866. *Platyschisma helicoides*? Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 271.
Chester Group: Ste. Genevieve County, Missouri.

(PLATYSTOMA Conrad, 1842.)

Platystoma bivolva. See *Strophostylus bivolvis*.

Platystoma broadheadi. See *Capulus haliotoides*.

Platystoma grayvillense. See *Strophostylus grayvillensis*.

Platystoma inornatum. See *Strophostylus inornatum*.

Platystoma peoriense. See *Strophostylus peoriensis*.

Platystoma tumidum. See *Strophostylus grayvillensis*.

(PLECTAMBONITES Pander, 1830.)

Plectambonites rhomboidalis. See *Leptæna rhomboidalis*.

(PLECTOSTYLUS Conrad, 1842.)

Plectostylus hildrethi. See *Soleniscus hildrethi*.

PLEURODICTYUM Goldfuss, 1826.

Pleurodictyum problematicum Goldfuss.

*1826. *Pleurodictyum problematicum*. Goldfuss, Petref. Germ., vol. 1, p. 113.

1870. *Pleurodictyum problematicum*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 260.
Waverly Group: Newark, Ohio.

1888. *Pleurodictyum Problematicum*. Herrick, Bull. Den. Univ., vol. 3, p. 30, pl. 8,
fig. 15.

Waverly Group: Licking County, Ohio.

PLEUROPHORUS King, 1844.

Pleurophorus angulatus Meek and Worthen.

1866. *Pleurophorus? angulatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 247.

Coal Measures: Wabash Cut-off, near New Harmony, Indiana.

1875. *Pleurophorus? angulatus*. Meek and Worthen, Geol. Surv. Ill., vol. 6, p. 529,
pl. 33, fig. 5.

Upper Coal Measures: Wabash Cut-off, near New Harmony, Indiana.

Pleurophorus calhouni Meek and Hayden.

1858. *Edmondia? Calhouni*. Meek and Hayden, Trans. Albany Inst., vol. 4, p. 80.
Permian: Smoky Hill Fork.

1864. *Pleurophorus? Calhouni*. Meek and Hayden, Pal. Upper Mo., p. 62, pl. 2,
figs. 13a, b.

Permian: Near mouth of Smoky Hill Fork of Kansas River and at head of
Cottonwood Creek, Kansas.

Pleurophorus chesterensis Worthen.

1884. *Pleurophorus chesterensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist.,
p. 16.

Chester L. S.: Chester, Illinois.

1890. *Pleurophorus chesterensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 123, pl. 20,
fig. 6.

Chester L. S.: Chester, Illinois.

Pleurophorus costatiformis Meek and Worthen.

1865. *Pleurophorus costatiformis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 247.

Keokuk Group: Warsaw, Illinois.

1868. *Pleurophorus costatiformis*. Meek and Worthen, Geol. Surv. Ill., vol. 3,
p. 535, pl. 19, fig. 5.

Keokuk Group: Warsaw, Illinois.

Pleurophorus immaturus Herrick.

1887. *Pleurophorus immaturus*. Herrick, Bull. Den. Univ., vol. 2, p. 145, pl. 14,
fig. 17.

Coal Measures: Flint Ridge, Ohio.

Pleurophorus meeki Walcott.

1884. *Pleurophorus Meeki*. Walcott, Pal. Eureka Dist., p. 246, pl. 8, fig. 3.
Lower Coal Measures: Eureka District, Nevada.

Pleurophorus minimus Worthen.

1884. *Pleurophorus minima*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist. p. 17.
Oolitic beds of St. Louis L. S.: Monroe County, Illinois.
1890. *Pleurophorus minimus*. Worthen, Geol. Surv. Ill., vol. 8, p. 124, pl. 20, figs. 4, 4a.
St. Louis L. S. (oolite): Monroe County, Illinois.

Pleurophorus monroensis Worthen.

1884. *Pleurophorus monroensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 17.
Oolitic beds of St. Louis L. S.: Monroe County, Illinois.
1890. *Pleurophorus monroensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 125, pl. 18, figs. 3, 3a.
St. Louis L. S.: Monroe County, Illinois.

Pleurophorus oblongus Meek.

1866. *Clidophorus Pallasi*. Geinitz, Carb. und Dyas in Nebr., p. 23, tab. 2, fig. 4.
(Not *Modiola Pallasi* de Vern., 1845.)
Nebraska City and Wyoming, Nebraska.
1872. *Pleurophorus oblongus*. Meek, U. S. Geol. Surv. Nebr., p. 212, pl. 10, figs. 4a-c.
Upper Coal Measures: Nebraska City, Nebraska.
1873. *Pleurophorus oblongus?* Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 589, pl. 26, fig. 6.
Upper Coal Measures: Springfield, Illinois.
1894. *Pleurophorus oblongus*. Keyes, Mo. Geol. Surv., vol. 5, p. 125.
Upper Coal Measures: Kansas City, Missouri.
1897. *Pleurophorus oblongus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 36.
Lower Coal Measures: Conway County, Arkansas.

Pleurophorus occidentalis Meek and Hayden.

1858. *Pleurophorus occidentalis*. Meek and Hayden, Trans. Albany Inst., vol. 4, p. 80.
Permian: In Nebraska on Missouri, opposite north Missouri boundary.
1859. *Pleurophorus occidentalis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 396.
White Permian L. S.: Guadalupe Mountains.
1864. *Pleurophorus occidentalis*. Meek and Hayden, Pal. Up. Mo., p. 35, pl. 1, figs. 11a, b.
Coal Measures: Nebraska, nearly opposite northern boundary of Missouri.
1866. *Clidophorus Pallasi*. Geinitz, Carb. und Dyas in Nebr., p. 23, tab. 2, fig. 3.
(Not *Mytilus Pallasi*, de Vern., 1845.)
Nebraska City, Nebraska.
1872. *Pleurophorus occidentalis?* Meek, U. S. Geol. Surv. Nebr., p. 212, pl. 10, fig. 12.
Upper Coal Measures: Otoe City, Nebraska; Nebraska City, Nebraska; Grayville, Illinois.
1891. *Clidophorus occidentalis*. White, Bull. U. S. Geol. Surv. No. 77, p. 27, pl. 4, fig. 3.
Permian: Goodwin Creek, Baylor County, Texas.

Pleurophorus permianus Swallow.

1858. *Pleurophorus (?) Permianus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 192.
Upper Permian: Near Smoky Hill Fork, Kansas.
1891. *Pleurophorus permianus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 250.
Lower Coal Measures: Des Moines, Iowa.

Pleurophorus quadricostatus Dawson.

1868. *Pleurophorus quadricostatus*. Dawson, Acad. Geol., p. 304, fig. 107.
Carboniferous L. S.: Stewiacke, Nova Scotia.

Pleurophorus subcostatus Meek and Worthen.

1865. *Pleurophorus subcostatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 246.
Upper Coal Measures: N. branch of Saline Creek, Gallatin County, Illinois.
1866. *Pleurophorus subcostatus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 347, pl. 27, figs. 2, 2a.
Upper Coal Measures: North branch of Saline Creek, Gallatin County, Illinois.
1881. *Pleurophorus subcostatus*. White, U. S. Geog. Surv., W. 100 Merid., vol. 3, Supp., Appendix, p. xxvii, pl. 3, fig. 8a.
Carboniferous: Coyote Creek, New Mexico.
1887. *Pleurophorus subcostatus?* Herrick, Bull. Den. Univ., vol. 2, p. 35, pl. 4, figs. 16, 16a.
Coal Measures: Flint Ridge, Ohio.

Pleurophorus subcuneatus Meek and Hayden.

1858. *Pleurophorus (Cardinia) subcuneatus*. Meek and Hayden, Trans. Albany Inst., vol. 4, p. 81.
Permian: Smoky Hill Fork.
1859. *Pleurophorus ? subcuneata*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 29.
Smoky Hill River and Cottonwood Creek, Kansas.
1864. *Pleurophorus ? subcuneatus*. Meek and Hayden, Pal. Up. Mo., p. 61, pl. 2, fig. 3.
Permian: Near mouth of Smoky Hill Fork of Kansas River and at head of Cottonwood Creek, Kansas.
1891. *Pleurophorus subcuneatus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 250.
Lower Coal Measures: Des Moines, Iowa.

Pleurophorus subellipticus. See Modiola subelliptica.**Pleurophorus tropidophorus Meek.**

1875. *Pleurophorus tropidophorus*. Meek, Pal. Ohio, vol. 2, p. 338, pl. 19, figs. 10a, b.
Coal Measures: Newark, Ohio.
1887. *Pleurophorus tropidophorus*. Herrick, Bull. Den. Univ., vol. 2, p. 35, pl. 4, fig. 15.
Coal Measures: Flint Ridge, Ohio.

Pleurophorus (species undetermined).

1876. *Pleurophorus* — ? —. White, Powell's Rep. Geol. Uinta Mts., p. 91.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1891. *Pleurophorus* — ? White, Bull. U. S. Geol. Surv. No. 77, p. 27, pl. 4, figs. 5-10.
Permian: Goodwin Creek, Baylor County, Texas.
1897. *Pleurophorus* sp. Smith, Proc. Am. Phil. Soc., vol. 35, p. 36.
Upper Carboniferous: Scott County, Arkansas.

PLEUROTOMARIA Defrance, 1824.**Pleurotomaria acadica Dawson.**

1883. *Pleurotomaria Acadica*. Dawson, Rep. Peter Redpath Mus., No. 2, p. 11.
Lower Carboniferous L. S.: Windsor, Nova Scotia.

Pleurotomaria adamsi Worthen.

1884. *Pleurotomaria adamsi*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 5.
Coal Measures: Peoria County, Illinois.

Pleurotomaria adamsi Worthen—Continued.

1890. *Pleurotomaria adamsi*. Worthen, Geol. Surv. Ill., vol. 8, p. 137, pl. 23, figs. 5, 5a.

Coal measures: Peoria County, Illinois.

Pleurotomaria beekwithana McChesney.

1860. *Pleurotomaria beekwithana*. McChesney, Desc. New Pal. Foss., p. 61.

Coal Measures: Danville, Illinois.

1865. *Pleurotomaria beekwithana*. McChesney, Ill. New Spec. Foss., pl. 2, figs. 17a-b.

1868. *Pleurotomaria Beckwithana*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 47, pl. 2, figs. 17 a-c.

Coal Measures: Springfield and Danville, Illinois.

Pleurotomaria bicarinata. See *Pleurotomaria turbiniformis*.**Pleurotomaria bonharborensis** Cox.

1857. *Pleurotomaria bonharborensis*. Cox, Geol. Surv. Ky., vol. 3, p. 567, pl. 8, figs. 4, 4a.

Coal Measures: Daviess County, Kentucky.

Pleurotomaria brazoensis Shumard.

1860. *Pleurotomaria Brazoensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 624.

Coal Measures: Young County, Texas, near Indian Reservation.

1866. *Pleurotomaria brazoensis?* Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 354, pl. 28, figs. 1a-d.

Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.

1888. *Pleurotomaria brazoensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 237.

Lower Coal Measures: Des Moines, Iowa.

1894. *Pleurotomaria brazoensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 142, pl. 48, figs. 2a, b.

Lower Coal Measures: Clinton, Missouri.

Pleurotomaria broadheadi White.

1880. *Pleurotomaria broadheadi*. White, Cont. to Inv. Pal., No. 8, p. 169, pl. 42, figs. 1a, b.

Coal Measures: Kansas City, Missouri.

1894. *Pleurotomaria broadheadi*. Keyes, Mo. Geol. Surv., vol. 5, p. 144, pl. 48, figs. 1a, b.

Upper Coal Measures: Kansas City and Clinton, Missouri.

Pleurotomaria carbonaria Norwood and Pratten.

1855. *Pleurotomaria carbonaria*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 75, pl. 9, fig. 8.

Coal Measures: Rock Creek, Williamson County, Illinois.

1888. *Pleurotomaria carbonaria*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 239.

Lower Coal Measures: Des Moines, Iowa.

1891. *Pleurotomaria carbonaria*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 253.

Lower Coal Measures: Des Moines, Iowa.

1891. *Pleurotomaria harti*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 83, pl. 14, figs. 3, 4.

Upper Coal Measures: Kansas City, Missouri.

1892. *Pleurotomaria harti*. Miller, 17th Rep. Geol. Surv. Ind., p. 693, pl. 14, figs. 3, 4.

Upper Coal Measures: Kansas City, Missouri.

1894. *Pleurotomaria carbonaria*. Keyes, Mo. Geol. Surv., vol. 5, p. 138.

Upper Coal Measures: Kansas City, Missouri.

1897. *Pleurotomaria harti*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 40.

Lower Coal Measures: Conway County, Arkansas.

Pleurotomaria chesterensis Meek and Worthen.

1860. *Pleurotomaria chesterensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 460.

Chester, L. S.: Chester, Illinois.

1866. *Pleurotomaria chesterensis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 303, pl. 24, figs. 1a-c.

Chester Group: Chester, Illinois.

Pleurotomaria chesterensis Swallow. See *Pleurotomaria* (species undetermined).

Pleurotomaria concava. See *Eotrochus concavus*.

Pleurotomaria conoformis Worthen.

1866. *Pleurotomaria conoides*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 271. (Not *P. conoides*, Deshayes, 1831.)

Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.

1873. *Pleurotomaria conoides*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 603, pl. 28, fig. 1.

Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.

1882. *Pleurotomaria conoformis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 38.

1894. *Pleurotomaria coniformis*. Keyes, Mo. Geol. Surv., vol. 5, p. 138.

Upper Coal Measures: Kansas City, Missouri.

Pleurotomaria conoides. See *Pleurotomaria conoformis*.

Pleurotomaria conulus Hall.

1866. *Pleurotomaria conula*. Hall, Trans. Albany Inst., vol. 4, p. 26.

St. Louis L. S.: Spergen Hill, Indiana.

1882. *Pleurotomaria conula*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 84, pl. 9, fig. 17.

St. Louis Group: Spergen Hill, Indiana.

1883. *Pleurotomaria conula*. Hall, 12th Rep. Geol. Surv. Ind., p. 358, pl. 32, fig. 17.

St. Louis Group: Spergen Hill and Lanesville, Indiana.

Pleurotomaria cooperensis Miller.

1863. *Pleurotomaria trochiformis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 99. (Not *P. trochiformis*, Postlock, 1843.)

Archimedes L. S.: Cooper County, Missouri.

1869. *Pleurotomaria cooperensis*. Miller, N. A. Geol. and Pal., p. 420.

Pleurotomaria coronula. See *Pleurotomaria sphærolata*.

Pleurotomaria coxana Meek and Worthen,

1866. *Pleurotomaria Cozana*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 272.

Lower Coal Measures: Nolan's Furnace, Edmonson County, Kentucky.

1873. *Pleurotomaria Cozana*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 600, pl. 28, fig. 15.

Coal Measures: Nolin's Furnace, Edmonson County, Kentucky.

1894. *Pleurotomaria coxana*. Keyes, Mo. Geol. Surv., vol. 5, p. 136.

Upper Coal Measures: Kansas City, Missouri.

Pleurotomaria coxana Worthen. See *Pleurotomaria iowensis*.

Pleurotomaria depressa. See *Pleurotomaria illinoiensis*.

Pleurotomaria dispersa Dawson.

1868. *Pleurotomaria dispersa*. Dawson, Acad. Geol., p. 310.

Carboniferous: Windsor, Nova Scotia.

Pleurotomaria elegantula Hall.

1866. *Murchisonia elegantula*. Hall, Trans. Albany Inst., vol. 4, p. 27.

St. Louis L. S.: Bloomington, Indiana.

Pleurotomaria elegantula Hall—Continued.

1882. *Pleurotomaria elegantula*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 84, pl. 9, fig. 19.

St. Louis Group: Bloomington, Indiana; Warsaw, Illinois.

1883. *Pleurotomaria elegantula*. Hall, 12th Rep. Geol. Surv. Ind., p. 358, pl. 32, fig. 19.

St. Louis Group: Bloomington, Spergen Hill, and Lanesville, Indiana.

Pleurotomaria excelsa Newberry.

1876. *Pleurotomaria excelsa*. Newberry, U. S. Expl. Exp. from Santa Fé to Grand and Green rivers, p. 140, pl. 3, figs. 4, 4a.

Upper Carboniferous: Canyon of Grand River, near junction with Green River, Southern Utah.

1876. *Pleurotomaria excelsa*. White, Powell's Rep. Geol. Uinta Mts., p. 91.

Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.

Pleurotomaria exigua Winchell.

1862. *Pleurotomaria exigua*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 424.

Marshall Group: Jefferson, Hillsdale County, Michigan.

Pleurotomaria giffordii Worthen.

1884. *Pleurotomaria giffordii*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 5. Coal Measures: Peoria County, Illinois.

1890. *Pleurotomaria giffordii*. Worthen, Geol. Surv. Ill., vol. 8, p. 135, pl. 23, figs. 8, 8a.

Coal Measures: Peoria County, Illinois.

Pleurotomaria glandula Shumard.

1860. *Pleurotomaria glandula*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 626.

Coal Measures: Buchanan County, Texas.

Pleurotomaria granulostriata Meek and Worthen.

1880. *Pleurotomaria granulostriata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 459.

Coal Measures: Hodge's Creek, Macoupin County, Illinois.

1886. *Pleurotomaria granulostriata*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 356, pl. 28, figs. 2a-d.

Lower Coal Measures: Macoupin County, Illinois.

Pleurotomaria grayvillensis Norwood and Pratten.

1855. *Pleurotomaria Grayvillensis*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 75, pl. 9, figs. 7a, b.

Coal Measures: Grayville, Illinois; near mouth of Rush Creek, Posey County, Indiana; Shawneetown and Galatia, Illinois.

1866. *Pleurotomaria Grayvillensis*. Geinitz, Carb. und Dyas in Nebr., p. 9, tab. 1, fig. 9.

Nebraska City, Nebraska.

1872. *Pleurotomaria Grayvillensis*. Meek, U. S. Geol. Surv. Nebr., p. 233, pl. 11, fig. 9.

Upper Coal Measures: Nebraska City, Nebraska; Illinois; Kentucky; Iowa; Missouri; Kansas.

Lower Coal Measures: Illinois and West Virginia.

1879. *Pleurotomaria grayvillensis*. White, Bull. U. S. G. and G. Surv. Terr., vol. 5, p. 219.

Carboniferous: Wild Band Pockets, northern Arizona, 15 miles south of Pipe Spring.

1880. *Pleurotomaria grayvillensis*. White, Cont. to Inv. Pal., No. 6, p. 140, pl. 34, fig. 5a.

Upper Carboniferous: Wild Band Pockets, northern Arizona, 15 miles south from Pipe Spring.

Pleurotomaria grayvillensis Norwood and Pratten—Continued.

1888. *Pleurotomaria grayvillensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 238.
Lower Coal Measures: Des Moines, Iowa.
1894. *Pleurotomaria grayvillensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 141.
Lower Coal Measures: Kansas City and Pleasant Hill, Missouri.

Pleurotomaria gurleyi Meek.

1871. *Pleurotomaria gurleyi*. Meek, Proc. Acad. Nat. Sci. Phil., p. 117.
Coal Measures: Danville, Illinois.
1873. *Pleurotomaria Gurleyi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 30,
figs. 6a, b.
Coal Measures.
1874. *Pleurotomaria Gurleyi*. Meek, Am. Jour. Sci. (3), vol. 7, p. 584.

Pleurotomaria hallana Shumard.

1859. *Pleurotomaria Halliana*. Shumard, Trans. St. Louis Acad. Sci., vol. 1,
p. 399.
White Permian L. S.: Guadalupe Mountains.

Pleurotomaria harii. See *Pleurotomaria carbonaria*.**Pleurotomaria haydenana** Geinitz.

1866. *Pleurotomaria Haydeniana*. Geinitz, Carb. und Dyas in Nebr., p. 11, tab. 1,
fig. 15.
Nebraska City, Nebraska.
1872. *Pleurotomaria Haydeniana*. Meek, U. S. Geol. Surv. Nebr., p. 231, pl. 11,
fig. 5.
Upper Coal Measures: Nebraska City, Nebraska.

Pleurotomaria hickmanensis Winchell.

1869. *Pleurotomaria Hickmanensis*. Winchell, Safford's Geol. of Tenn., p. 445.
Shales, just above Black Shale: Hickman and Maury counties, Tennessee.
1870. *Pleurotomaria Hickmanensis*. Winchell, Proc. Am. Phil. Soc., vol. 11,
p. 257.
Waverly Group: Hickman County, Tennessee.

Pleurotomaria humerosa Meek and Hayden.

1858. *Pleurotomaria humerosa*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil.,
p. 264.
Coal Measures: Grasshopper Creek, Kansas.
1864. *Pleurotomaria humerosa*. Meek and Hayden, Pal. Up. Mo., p. 46, pl. 1,
figs. 14a, b.
Coal Measures: Grasshopper Creek, Northwestern Kansas.

Pleurotomaria humilis Hall.

1856. *Pleurotomaria humilis*. Hall, Trans. Albany Inst., vol. 4, p. 21.
St. Louis L. S.: Bloomington and Spergen Hill, Indiana.
1882. *Pleurotomaria humilis*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 82,
pl. 9, fig. 3.
St. Louis Group: Spergen Hill and Bloomington, Indiana.
1883. *Pleurotomaria humilis*. Hall, 12th Rep. Geol. Surv. Ind., p. 353, pl. 32, fig. 3.
St. Louis Group: Bloomington, Lanesville, and Spergen Hill, Indiana.

Pleurotomaria humilis Winchell. See *Pleurotomaria* (species undetermined).**Pleurotomaria ignobilis** Dawson.

1868. *Pleurotomaria ignobilis*. Dawson, Acad. Geol., p. 310.
Carboniferous L. S.: Windsor, Nova Scotia.

***Pleurotomaria illinoisensis* Worthen.**

1887. *Pleurotomaria depressa*. Cox, Geol. Rep. Ky., vol. 3, p. 569, pl. 8, figs. 10, 10a.
(Not *P. depressa*, Phillips, 1836.)
Coal Measures: Bonharbour, Daviess County, and Airdrie, Muhlenberg County, Kentucky.
1884. *Pleurotomaria illinoisensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 4.
Coal Measures: Mercer County, Illinois.
1888. *Pleurotomaria modesta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 238, pl. 12, figs. 2a, b.
Lower Coal Measures: Des Moines, Iowa.
1889. *Pleurotomaria kentuckiensis*. Miller, N. A. Geol. and Pal., p. 421.
1890. *Pleurotomaria illinoisensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 135, pl. 23, figs. 6-6b.
Coal Measures: Mercer County, Illinois.
1891. *Pleurotomaria modesta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 252.
Lower Coal Measures: Des Moines, Iowa.
1892. *Pleurotomaria modesta*. Keyes, Proc. Iowa Acad. Sci., vol. 1, pt. 2, p. 22.
Lower Coal Measures: Near Des Moines, Iowa.
1894. *Pleurotomaria illinoisensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 139.
Coal Measures: Clinton, Knob Noster, and Kansas City, Missouri.
1897. *Pleurotomaria modesta*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 39.
Upper Coal Measures: Crawford County, Arkansas.

***Pleurotomaria inornata* Meek.**

1872. *Pleurotomaria inornata*. Meek, U. S. Geol. Surv. Nebr., p. 232, pl. 4, fig. 14.
Upper Coal Measures: Near Nebraska City, Nebraska.

***Pleurotomaria iowensis* Worthen.**

1884. *Pleurotomaria coxana*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 6.
(Not *P. coxana*, M. and W., 1866.)
Keokuk L. S.: Keokuk, Iowa.
1890. *Pleurotomaria iowensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 138, pl. 24, fig. 2.
Keokuk L. S.: Keokuk, Iowa.

Pleurotomaria kentuckiensis. See *Pleurotomaria illinoisensis*.

Pleurotomaria lens. See *Straparollus lens*.

Pleurotomaria levenworthana. See *Cyclonema levenworthanum*.

***Pleurotomaria marcouana* Geinitz.**

1866. *Pleurotomaria Marcouiana*. Geinitz, Carb. und Dyas in Nebr., p. 10, tab. 1, fig. 10.
Nebraska City, Nebraska.
1872. *Pleurotomaria Marcouiana*. Meek, U. S. Geol. Surv. Nebr., p. 233, pl. 11, fig. 8.
Upper Coal Measures: Nebraska City, Nebraska.

***Pleurotomaria meekana* Hall.**

1866. *Pleurotomaria Meekana*. Hall, Trans. Albany Inst., vol. 4, p. 22.
St. Louis L. S.: Spergen Hill, Indiana.
1882. *Pleurotomaria (?) Meekana*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 82, pl. 9, figs. 8, 9.
St. Louis Group: Alton, Ill.
1883. *Pleurotomaria meekana*. Hall, 12th Rep. Geol. Surv. Ind., p. 353, pl. 32, figs. 8, 9.
Does not occur at Spergen Hill.

Pleurotomaria meta Meek and Worthen.

1885. *Pleurotomaria (Murchisonia?) meta*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 252.

Keokuk Group: Warsaw, Illinois.

Pleurotomaria minima Rowley.

1885. *Pleurotomaria minima*. Rowley, Am. Geol., vol. 16, p. 222, fig. 19.

Louisiana L. S.: Louisiana, Missouri.

Pleurotomaria mississippiensis White and Whitfield.

1862. *Pleurotomaria mississippiensis*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 302.

Chemung Group: Burlington, Iowa.

1871. *Pleurotomaria textiligera*. Meek, Proc. Acad. Nat. Sci. Phil., p. 176.

Waverly Group: Medina, Ohio.

1875. *Pleurotomaria textiligera*. Meek, Pal. Ohio, vol. 2, p. 314, pl. 13, figs. 7a, b.

Waverly Group: Medina, Ohio.

1888. *Pleurotomaria textiligera*. Herrick, Bull. Den. Univ., vol. 4, p. 46.

Waverly Group: Bagdad and Lodi, Ohio.

1891. *Pleurotomaria Mississippensis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 609.

1894. *Pleurotomaria Mississippensis*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 494.

Pleurotomaria missouriensis Swallow.

1860. *Trochus Missouriensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 657.

Coal Measures: Jackson County, Missouri.

1894. *Pleurotomaria missouriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 136, pl. 48, figs. 3a, b.

Upper Coal Measures: Kansas City, Missouri.

Pleurotomaria mitigata Hall.

1860. *Pleurotomaria ? mitigata*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 108.

Goniatite L. S.: Rockford, Indiana.

Pleurotomaria modesta. See *Pleurotomaria illinoisensis*.**Pleurotomaria monilifera** White.

1880. *Naticopsis monilifera*. White, Cont. to Inv. Pal., No. 8, p. 168, pl. 42, figs. 3a-c.

Upper Coal Measures: Pleasant Hill, Cass County, Missouri.

1881. *Naticopsis monilifera*. White, U. S. Geog. Surv. W. 100 Merid., vol. 3, Supp. Appendix, p. xxxiv, pl. 3, figs. 3a-d.

Carboniferous: Near Taos, New Mexico.

1894. *Pleurotomaria monilifera*. Keyes, Mo. Geol. Surv., vol. 5, p. 144.

Upper Coal Measures: Pleasant Hill and Kansas City, Missouri.

Pleurotomaria montezuma Worthen.

1883. *Pleurotomaria Montezuma*. Worthen, Geol. Surv. Ill., vol. 7, p. 324.

Burlington L. S.: Montezuma, Pike County, Illinois.

1890. *Pleurotomaria montezuma*. Worthen, Geol. Surv. Ill., vol. 8, p. 136, pl. 24, fig. 2.

Burlington L. S.: Montezuma, Pike County, Illinois.

1894. *Pleurotomaria montezuma*. Keyes, Mo. Geol. Surv., vol. 5, p. 134.

Burlington L. S.: Hannibal, Missouri.

Pleurotomaria nauvoensis Worthen.

1884. *Pleurotomaria nauvoensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 5.

Upper Keokuk L. S.: Nauvoo, Illinois.

Pleurotomaria nauvoensis Worthen—Continued.

1890. *Pleurotomaria nauvoensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 137, pl. 25, fig. 3.

Keokuk L. S.: Nauvoo, Illinois.

Pleurotomaria nevadensis Walcott.

1884. *Pleurotomaria Nevadaensis*. Walcott, Pal. Eureka Dist., p. 269, pl. 24, figs. 2, 2a.

Lower Carboniferous: Eureka District, Nevada.

Pleurotomaria newportensis White.

1880. *Pleurotomaria newportensis*. White, Cont. to Pal., No. 8, p. 169, pl. 42, figs. 2a, b.

Coal Measures: Newport, Indiana.

1887. *Pleurotomaria newportensis?* Herrick, Bull. Den. Univ., vol. 2, p. 21, pl. 2, fig. 18.

Coal Measures: Flint Ridge, Ohio.

Pleurotomaria nodomarginata McChesney.

1860. *Pleurotomaria nodomarginata*. McChesney, Desc. New Pal. Foss., p. 70.

Hamilton Group: Near Batesville, Arkansas.

1865. *Pleurotomaria nodomarginata*. McChesney, Ills. New Spec. Foss., pl. 7, figs. 1a-c.

1868. *Pleurotomaria nodomarginata*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 47, pl. 7, figs. 1a-c.

Hamilton Group: Batesville, Arkansas.

1884. *Pleurotomaria nodomarginata*. Walcott, Pal. Eureka Dist., p. 269, pl. 18, fig. 15.

Lower Carboniferous: Eureka District, Nevada.

Pleurotomaria nodulostriata Hall.

1856. *Pleurotomaria nodulostriata*. Hall, Trans. Albany Inst., vol. 4, p. 21.

St. Louis L. S.: Spergen Hill and Bloomington, Indiana.

1882. *Pleurotomaria nodulostriata*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 80, pl. 9, fig. 5.

St. Louis Group: Spergen Hill and Bloomington, Indiana; Alton, Illinois.

1883. *Pleurotomaria nodulostriata*. Hall, 12th Rep. Geol. Surv. Ind., p. 352, pl. 32, fig. 5.

St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.

Pleurotomaria obtusispira Shumard.

1859. *Pleurotomaria obtusispira*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 401.

Coal Measures: 4 miles west of Sierra Heuco, El Paso County, Texas.

Pleurotomaria perhumerosa Meek.

1872. *Pleurotomaria perhumerosa*. Meek, U. S. Geol. Surv. Nebr., p. 232, pl. 4, figs. 13a, b.

Upper Coal Measures: Near Nebraska City, Nebraska; Rulo, Kansas.

Coal Measures: Illinois.

1894. *Pleurotomaria perhumerosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 140, pl. 48, fig. 5.

Upper Coal Measures: Kansas City, Missouri.

Pleurotomaria perizomata White.

1881. *Pleurotomaria perizomata*. White, U. S. Geol. Surv. W. 100 Merid., vol. 3, Supp. Appendix, p. xxxi, pl. 3, figs. 5a-c.

Carboniferous: Near Taos, New Mexico.

Pleurotomaria perornata Shumard.

1859. *Pleurotomaria perornata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 401.

Coal Measures: 4 miles west of Sierra Heuco, El Paso County, Texas.

Pleurotomaria piasaensis Hall.

1856. *Pleurotomaria Piasaensis*. Hall, Trans. Albany Inst., vol. 4, p. 22.
St. Louis L. S.: Pine Creek, above Alton, Illinois.
1882. *Pleurotomaria Piasaensis*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 83,
pl. 9, figs. 6, 7.
St. Louis Group: Piasa Creek, above Alton, Illinois.
1883. *Pleurotomaria piasaensis*. Hall, 12th Rep. Geol. Surv. Ind., p. 354, pl. 32,
figs. 6, 7.
St. Louis Group: Piasa Creek, above Alton, Illinois.

Pleurotomaria pratteni Meek and Worthen.

1860. *Pleurotomaria Pratteni*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 459.
Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1866. *Pleurotomaria Pratteni*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 357,
pl. 28, figs. 7a-d.
Lower Coal Measures: Macoupin County, Illinois.

Pleurotomaria proutana Shumard.

1859. *Pleurotomaria Proutiana*. Shumard, Trans. St. Louis Acad. Sci., vol. 1,
p. 401.
Coal Measures: 4 miles west of Sierra Heuco, El Paso County, Texas.

Pleurotomaria quinquesulcata Winchell.

1865. *Pleurotomaria quinquesulcata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 131.
Oolite bed No. 6: Burlington, Iowa.

Pleurotomaria riddelli Shumard.

1860. *Pleurotomaria Riddellii*. Shumard, Trans. St. Louis Acad. Sci., vol. 1,
p. 625.
Coal Measures: Palo Pinto County, Texas.

Pleurotomaria rota Winchell.

1863. *Pleurotomaria ? rota*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 19.
Yellow S. S. and base of Burlington L. S.: Burlington, Iowa.

Pleurotomaria rotundata. See Pleurotomaria subglobosa.**Pleurotomaria scitula Meek and Worthen.**

1860. *Pleurotomaria scitula*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 461.
Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1866. *Pleurotomaria scitula*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 353,
pl. 28, figs. 9a-d.
Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.

Pleurotomaria sedaliense Miller.

1891. *Pleurotomaria sedaliense*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind.,
p. 83, pl. 14, fig. 13.
Chouteau L. S.: Sedalia, Missouri.
1892. *Pleurotomaria sedaliense*. Miller, 17th Rep. Geol. Surv. Ind., p. 693, pl. 14,
fig. 13.
Chouteau L. S.: Sedalia, Missouri.
1894. *Pleurotomaria sedaliensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 134.
Kinderhook L. S.: Sedalia, Missouri.

Pleurotomaria shumardi Meek and Worthen.

1860. *Pleurotomaria Shumardi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 462.
Base of Geode bed: Warsaw and Keokuk, Illinois.
1866. *Pleurotomaria Shumardi*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 260,
pl. 18, figs. 6a, b.
Keokuk Group: Warsaw, Illinois.

Pleurotomaria sinistrorsa Swallow.

1858. *Pleurotomaria sinistrorsa*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 203.

Coal Measures.

Pleurotomaria speciosa Meek and Worthen.

1860. *Pleurotomaria speciosa*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 461.
Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1866. *Pleurotomaria speciosa*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 352, pl. 28, figs. 5 a-c.
Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1894. *Pleurotomaria speciosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 137.
Upper Coal Measures: Kansas City, Missouri.
1897. *Pleurotomaria conf. speciosa*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 39.
Upper Coal Measures: Poteau Mountain, Indian Territory.

Pleurotomaria sphærolata Conrad.

1842. *Pleurotomaria sphærolata*. Conrad, Jour. Acad. Nat. Sci. Phil., (1), vol. 8, p. 272, pl. 16, fig. 13.
Carboniferous: Inclined plane of the Alleghany Mountains.
1852. *Pleurotomaria coronula*. Hall, Stansb. Exped. Gt. Salt Lake, p. 413, pl. 2, figs. 6a-d.
Carboniferous: Missouri River, below Weston.
1858. *Pleurotomaria sphærolata*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 722, pl. 29, fig. 13.
Coal Measures: Indiana, Illinois, Iowa, Missouri, and Kansas.
1884. *Pleurotomaria sphærolata*. White, 13th Rep. Geol. Surv. Ind., p. 161, pl. 32, figs. 1-3.
Upper Coal Measures: Indiana.
1891. *Pleurotomaria sphærolata*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 253.
Lower Coal Measures: Des Moines, Iowa.
1894. *Pleurotomaria sphærolata*. Keyes, Mo. Geol. Surv., vol. 5, p. 141.
Upper Coal Measures: Kansas City, Missouri.

Pleurotomaria spironema Meek and Worthen.

1866. *Pleurotomaria spironema*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 272.
Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1873. *Pleurotomaria spironema*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 601, pl. 28, fig. 5.
Coal Measures: Hodge's Creek, Macoupin County, Illinois.

Pleurotomaria stella Winchell.

1862. *Pleurotomaria Stella*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 424.
Marshall Group: Jefferson, Hillsdale County, Michigan.
1888. *Pleurotomaria stella?* Herrick, Bull. Den. Univ., vol. 4, p. 116, pl. 10, fig. 41.
Waverly Group: Newark, Ohio.

Pleurotomaria strigillata Herrick.

1888. *Pleurotomaria (Cyclonema?) strigillata*. Herrick, Bull. Den. Univ., vol. 3, p. 86, pl. 1, figs. 10, 15; pl. 2, fig. 25.
Waverly Group: Licking County, Ohio.
1888. *Cyclonema strigillata*. Herrick, Bull. Den. Univ., vol. 3, pl. 12, fig. 39.
Waverly Group: Licking County, Ohio.
1888. *Pleurotomaria strigillata*. Herrick, Bull. Den. Univ., vol. 4, pl. 7, fig. 9.
Waverly Group: Ohio.
1895. *Pleurotomaria strigillata*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 18, fig. 9.
Kinderhook: Granville, Ohio.

Pleurotomaria stulta Herrick.

1888. *Flemingia stultus*. Herrick, Bull. Den. Univ., vol. 4, p. 45, pl. 7, fig. 10.
Middle Waverly: Ohio.

1895. *Pleurotomaria (Flemingia) stulta*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 18, fig. 10.

Kinderhook: Granville, Ohio.

Pleurotomaria subangulata. See *Cyclonema subangulatum*.

Pleurotomaria subcarbonaria Keyes.

1894. *Pleurotomaria subcarbonaria*. Keyes, Mo. Geol. Surv., vol. 5, p. 135, pl. 49, fig. 2.

Burlington L. S.: Louisiana, Missouri.

Kinderhook Group: Burlington, Iowa.

Pleurotomaria subconstricta Meek and Worthen.

1860. *Pleurotomaria subconstricta*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 458.

Coal Measures: Hodge's Creek, Macoupin County, Illinois.

1866. *Pleurotomaria subconstricta*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 351, pl. 28, figs. 6a-c.

Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.

Pleurotomaria subdecussata Geinitz.

1866. *Pleurotomaria subdecussata*. Geinitz, Carb. und Dyas in Nebr., p. 10, tab. 1, fig. 11.

Nebraska City, Nebraska.

1872. *Pleurotomaria subdecussata*. Meek, U. S. Geol. Surv. Nebr., p. 233, pl. 11, fig. 19.

Upper Coal Measures: Nebraska City, Nebraska.

Pleurotomaria subglobosa Hall.

1856. *Pleurotomaria rotundata*. Hall, Trans. Albany Inst., vol. 4, p. 23. (Not *P. rotundata* Hall, 1843.)

St. Louis L. S.: Spergen Hill and Bloomington, Indiana; Alton, Illinois.

1877. *Pleurotomaria subglobosa*. Hall, Miller's Am. Pal. Foss., p. 245.

1882. *Pleurotomaria subglobosa*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 79, pl. 9, fig. 10.

St. Louis Group: Spergen Hill and Bloomington, Indiana; Alton, Illinois.

1883. *Pleurotomaria subglobosa*. Hall, 12th Rep. Geol. Surv. Ind., p. 355, pl. 32, fig. 10.

St. Louis Group: Spergen Hill, Bloomington, and Lanesville, Indiana; Alton, Illinois.

Pleurotomaria subscalaris Meek and Worthen.

1860. *Pleurotomaria subscalaris*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 460.

Lower Coal Measures: Macoupin County, Illinois.

1866. *Pleurotomaria subscalaris*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 360, pl. 28, figs. 10a, b.

Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.

1894. *Pleurotomaria subscalaris*. Keyes, Mo. Geol. Surv., vol. 5, p. 136.

Upper Coal Measures: Kansas City, Missouri.

Pleurotomaria subsinuata Meek and Worthen.

1860. *Pleurotomaria subsinuata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 460.

Coal Measures: Hodge's Creek, Macoupin County, Illinois.

1866. *Pleurotomaria subsinuata*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 358, pl. 28, figs. 4a-d.

Lower Coal Measures: Macoupin County, Illinois.

Pleurotomaria subturbinata Meek and Hayden.

1858. *Pleurotomaria subturbinata*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 264.

Upper Coal Measures: Near Helena, Kansas.

1864. *Pleurotomaria subturbinata*. Meek and Hayden, Pal. Up. Mo., p. 47, pl. 1, fig. 13.

Coal Measures: Grasshopper Creek, northeastern Kansas.

Pleurotomaria sulcomarginata Conrad.

1879. *Pleurotomaria sulcomarginata*. Hall, Pal. N. Y., vol. 5, pt. 2, p. 69, pl. 19, figs. 8-17.

Hamilton Group: New York.

1888. *Pleurotomaria sulcomarginata*? Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 14. Bedford Shale: Central College, Ohio.

1889. *Pleurotomaria* sp. Herrick, Am. Geol., vol. 3, pl. 4, fig. 14.

1895. *Pleurotomaria sulcomarginata*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 14. Shale above Berea Grit: Ohio.

Pleurotomaria swallovana Hall.

1856. *Pleurotomaria Swallowana*. Hall, Trans. Albany Inst., vol. 4, p. 24.

St. Louis L. S.: Spergen Hill and Bloomington, Indiana.

1882. *Pleurotomaria Swallowana*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 80, pl. 9, figs. 1, 2.

St. Louis Group: Spergen Hill and Bloomington, Indiana.

1883. *Pleurotomaria Swallowana*. Hall, 12th Rep. Geol. Surv. Ind., p. 356, pl. 32, figs. 1, 2.

St. Louis Group: Spergen Hill, Lanesville and Bloomington, Indiana.

Pleurotomaria tabulata Conrad.

1835. *Turbo tabulata*. Conrad, Trans. Geol. Soc. Penn., vol. 1, pt. 2, p. 267, pl. 12, fig. 1.

1842. *Pleurotomaria tabulata*. Conrad, Jour. Acad. Nat. Sci. Phil. (1), vol. 8, p. 272. Carboniferous: Inclined plane of the Alleghany Mountains.

1858. *Pleurotomaria tabulata*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 721, pl. 29, figs. 12a, b. Coal Measures: Pennsylvania, Indiana, and Illinois.

1881. *Pleurotomaria tabulata*. White, 2d Ann. Rep. Dep. Stat. and Geol. Ind., p. 519, pl. 18, figs. 4, 5.

Coal Measures: Rush Creek, Posey County, Indiana.

1884. *Pleurotomaria tabulata*. White, 13th Rep. Geol. Surv. Ind., p. 160, pl. 32, figs. 4, 5.

Upper Coal Measures: Rush Creek, Posey County; Wagon-defeat Creek, Sullivan County, and Warrick County, Indiana.

1894. *Pleurotomaria tabulata*. Keyes, Mo. Geol. Surv., vol. 5, p. 142.

Upper Coal Measures: Kansas City, Missouri.

Pleurotomaria taggarti Meek.

1874. *Pleurotomaria Taggarti*. Meek, Ann. Rep. U. S. Geol. and Geog. Surv. Terr., p. 231.

Carboniferous: Canyon of Four-Mile Creek, Colorado.

1880. *Pleurotomaria taggarti*. White, Cont. to Inv. Pal., No. 6, p. 140, pl. 34, figs. 1a, b.

Carboniferous: Near Horseshoe Mountain, South Park, Colorado.

Pleurotomaria tectoria Winchell.

1863. *Pleurotomaria tectoria*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 19.

Yellow S. S.: Burlington, Iowa.

Pleurotomaria tenuicincta Meek and Worthen.

1880. *Pleurotomaria tenuicincta*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 459.

Upper Coal Measures: Springfield, Illinois.

Pleurotomaria tenuicincta Meek and Worthen—Continued.

1866. *Pleurotomaria tenuicincta*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 355, pl. 28, figs. 3a-d.

Upper Coal Measures: Springfield, Illinois.

1897. *Pleurotomaria tenuicincta*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 40.

Upper Coal Measures: Poteau Mountain, Indian Territory.

Pleurotomaria tenuistriata Shumard.

1860. *Pleurotomaria tenuistriata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 625.

Coal Measures: Young County, Texas, near the Indian Reservation.

Pleurotomaria textiliger*. See *Pleurotomaria mississippiensis*.*Pleurotomaria trilineata Hall.**

1856. *Pleurotomaria trilineata*. Hall, Trans. Albany Inst., vol. 4, p. 25.

St. Louis L. S.: Spergen Hill and Bloomington, Indiana.

1882. *Pleurotomaria trilineata*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 80, pl. 9, fig. 20.

St. Louis Group: Spergen Hill and Bloomington, Indiana; Alton, Illinois.

1883. *Pleurotomaria trilineata*. Hall, 12th Rep. Geol. Surv. Ind., p. 357, pl. 32, fig. 20.

St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.

Pleurotomaria trochiformis*. See *Pleurotomaria cooperensis*.**Pleurotomaria tumida*. See *Strophostylus grayvillensis*.****Pleurotomaria turbiniformis Meek and Worthen.**

1860. *Pleurotomaria bicarinata*. McChesney, Desc. New Spec. Pal. Foss., p. 90.
(Not *P. bicarinata*, Sowerby, 1818.)

Coal Measures: Lasalle, Illinois.

1860. *Pleurotomaria turbiniformis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 461.

Upper Coal Measures: Lasalle, Illinois.

1866. *Pleurotomaria turbiniformis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 359, pl. 28, figs. 8a-c.

Upper Coal Measures: Lasalle, Illinois.

1884. *Pleurotomaria turbiniformis*. White, 13th Rep. Geol. Surv. Ind., p. 160, pl. 32, figs. 7, 8.

Upper Coal Measures: Lasalle and Paris, Illinois; Vigo County, Indiana.

1894. *Pleurotomaria turbiniformis*. Keyes, Mo. Geol. Surv., vol. 5, p. 135, pl. 48, figs. 6a, b.

Upper Coal Measures: Kansas City, Missouri.

Pleurotomaria vadosa Hall.

1860. *Pleurotomaria vadosa*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 108.
Goniatite L. S.: Rockford, Indiana.

1862. *Pleurotomaria vadosa*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 423.

Marshall S. S. (?): Western part of Michigan.

1865. *Pleurotomaria vadosa*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 132.

Marshall Group: Rockford, Indiana.

1870. *Pleurotomaria vadosa*. Winchell, Proc. Am. Phil. Soc., vol. 1, p. 267.

Waverly Group: Sciotoville and Rockville, Ohio.

1888. *Pleurotomaria vadosa?* Herrick, Bull. Den. Univ., vol. 4, pl. 7, fig. 11.

Waverly Group: 1 mile east of Harlan, Ohio.

1895. *Pleurotomaria vadosa?* Herrick, Geol. Surv. Ohio, vol. 7, pl. 18, fig. 11.

Near Base of Cuyahoga Shale: Near Harlem, Ohio.

Pleurotomaria valvatiformis Meek and Worthen.

1866. *Pleurotomaria valvatiformis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 273.
Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1873. *Pleurotomaria? valvatiformis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 602, pl. 29, fig. 9.
Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1891. *Pleurotomaria valvatiformis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 254.
Lower Coal Measures: Des Moines, Iowa.
1894. *Pleurotomaria valvatiformis*. Keyes, Mo. Geol. Surv., vol. 5, p. 137.
Upper Coal Measures: Kansas City, Missouri.

Pleurotomaria whitii Winchell.

1862. *Pleurotomaria Whitii*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 423.
Marshall S. S. (?): Western Michigan.

Pleurotomaria wortheni Hall.

1856. *Pleurotomaria wortheni*. Hall, Trans. Albany Inst., vol. 4, p. 23.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana.
1858. *Pleurotomaria wortheni*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 664, pl. 23, figs. 13a-d.
Warsaw L. S.: Spergen Hill and Bloomington, Indiana.
1882. *Pleurotomaria Wortheni*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 81, pl. 9, fig. 4.
St. Louis Group: Spergen Hill and Bloomington, Indiana.
1883. *Pleurotomaria Wortheni*. Hall, 12th Rep. Geol. Surv. Ind., p. 356, pl. 32, fig. 4.
St. Louis Group: Bloomington, Spergen Hill, and Lanesville, Indiana.

Pleurotomaria (species undetermined).

1862. *Pleurotomaria humilis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 424. (Not *P. humilis* Hall, 1856.)
Marshall S. S. (?): Western Michigan.
1863. *Pleurotomaria? Chesterensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 99. (Not *P. chesterensis* M. & W., 1860.)
Upper Archimedes L. S.: Chester, Illinois.
1868. *Pleurotomaria*. Rogers, Geol. Rep. Penn., vol. 2, p. 833, fig. 691.
1873. *Pleurotomaria* (sp. undet.). Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 19, fig. 1.
Keokuk Group.
1873. *Pleurotomaria?* (sp. undet.). Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 26, fig. 6b.
Coal Measures.
1887. *Pleurotomaria* sp.? Herrick, Bull. Den. Univ., vol. 2, p. 21, pl. 2, figs. 11, 13.
Coal Measures: Flint Ridge, Ohio.
1888. *Pleurotomaria* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 38.
Waverly Group: Ohio.
1889. *Pleurotomaria* sp. Herrick, Am. Geol., vol. 3, pl. 4, fig. 14.
Bedford Shale: Ohio.
1897. *Pleurotomaria* sp. Smith, Proc. Am. Phil. Soc., vol. 35, p. 40.
Lower Coal Measures: Conway County, Franklin County, and Pope County, Arkansas.

(PLICATULA Lamark, 1809.)

Plicatula striato-costata. See *Meekella striato-costata*.

POLIOCHERA Scudder, 1884.

Poliochera punctulata Scudder.

1884. *Poliochera punctulata*. Scudder, Proc. Am. Acad. Arts and Sci., vol. 20, p. 16.
Carboniferous: Mazon Creek, Illinois.

Poliochera punctulata Scudder—Continued.

1890. *Poliochera punctulata*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 444, pl. 39, figs. 2, 6.

Carboniferous: Mazon Creek, Illinois.

1890. *Poliochera punctulata*. Scudder, Foss. Insc. N. A., vol. 1, p. 420, pl. 31, figs. 2, 6.

Carboniferous: Mazon Creek, Illinois.

POLYERNUS Scudder, 1885.**Polyernus complanatus** Scudder.

1885. *Polyernus complanatus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 343, pl. 32, figs. 8, 11.

Carboniferous: Mazon Creek, Illinois.

1890. *Polyernus complanatus*. Scudder, Foss. Insc. N. A., vol. 1, p. 307, pl. 18, figs. 8, 11.

Carboniferous: Mazon Creek, Illinois.

Polyernus laminarum Scudder.

1885. *Polyernus laminarum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 343, pl. 31, fig. 1.

Carboniferous: Pittston, Pennsylvania.

1890. *Polyernus laminarum*. Scudder, Foss. Insc. N. A., vol. 1, p. 307, pl. 17, fig. 1.

Carboniferous: Pittston, Pennsylvania.

(POLYPHEMOPSIS Portlock, 1843.)

Polyphemopsis chrysalis. See *Bulimorpha chrysalis*.

Polyphemopsis fusiformis. See *Soleniscus attenuatus*.

Polyphemopsis inornata. See *Bulimorpha inornata*.

Polyphemopsis keokuk. See *Bulimorpha* † *keokuk*.

Polyphemopsis melanoides. See *Bulimorpha melanoides*.

Polyphemopsis nitidula. See *Bulimorpha nitidula*.

Polyphemopsis peracuta. See *Bulimorpha* † *peracuta*.

POLYPORA McCoy, 1845.**Polypora approximata** Ulrich.

1859. *Polypora biarmica*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 450. (Not *P. biarmica* Keyserling.)

Upper Archimedes L. S.: Chester, Illinois.

1890. *Polypora approximata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 599, pl. 61, figs. 5, 5a.

Chester Group: Chester, Illinois; Sloan's Valley and Litchfield, Kentucky.

Polypora biarmica Keyserling.

1846. *Polypora biarmica*. Keyserling, Beob. Reise Petschors Land, p. 191, Tab. 3, fig. 10.

1878. *Polypora biarmica*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 622, pl. 28, fig. 4.

Carboniferous: Feilden Isthmus, latitude 82° 43'.

Also see *Polypora strigata* and *Polypora approximata*.

Polypora biseriata Ulrich.

1890. *Polypora biseriata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 592, pl. 60, figs. 4-4b.

Warsaw Beds: Monroe County, Illinois; Warsaw, Illinois.

† St. Louis L. S.: † Barrett's Station, Missouri.

Polypora biseriata Ulrich—Continued.

1894. *Polypora biseriata* ? Keyes, Mo. Geol. Surv., vol. 5, p. 29.
St. Louis L. S.: Barrett Station, Missouri.

Polypora burlingtonensis Ulrich.

1890. *Polypora burlingtonensis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 587, pl. 59, figs. 2, 2a.
Burlington L. S.: Burlington, Iowa; Henderson County, Illinois.

Polypora cestriensis Ulrich.

1890. *Polypora cestriensis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 594, pl. 55, figs. 4-4b; pl. 60, figs. 7-7c.
Chester Group: Chester, Kaskaskia and near Anna, Illinois; Litchfield and Sloan's Valley, Kentucky.
1894. *Polypora cestriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 29.
Kaskaskia L. S.: Ste. Genevieve, Missouri.

Polypora complanata Ulrich.

1890. *Polypora complanata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 597, pl. 60, figs. 6-6c.
Chester Group: Chester, Illinois.

Polypora corticosa Ulrich.

1890. *Polypora corticosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 596, pl. 60, figs. 5-5c; pl. 61, fig. 1.
Chester Group: Chester, Illinois.
1894. *Polypora corticosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 30.
Kaskaskia L. S.: Chester, Illinois.

Polypora crassa Ulrich.

1890. *Polypora crassa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 603, pl. 61, figs. 8, 8a.
Upper Coal Measures: Sugar Creek, Sangamon County, Illinois.

Polypora distincta Ulrich.

1890. *Polypora distincta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 603, pl. 61, figs. 7, 7a.
Upper Coal Measures: Springfield, Illinois.

Polypora fastuosa Foerste.

1887. *Polypora fastuosa*. Foerste, Bull. Den. Univ., vol. 2, p. 82, pl. 7, figs. 9a-d.
Coal Measures: Flint Ridge and Bald Hill, Ohio.

Polypora gracilis Prout.

1860. *Polypora gracilis*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 580.
Warsaw L. S.: Warsaw, Illinois.
1866. *Polypora gracilis*. Prout, Geol. Surv. Ill., vol. 2, p. 422, pl. 21, figs. 1, 1a.
Keokuk L. S.: Warsaw, Illinois.
1888. *Polypora gracilis*. Ulrich, Bull. Den. Univ., vol. 4, p. 73.
Waverly Group: Richfield and Sciotoville, Ohio.
1890. *Polypora* (?) *gracilis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 590, pl. 61, figs. 10, 10a.
Keokuk Group: Warsaw and Nauvoo, Illinois; Keokuk, Iowa; Kings Mountain, Kentucky.
1894. *Polypora gracilis*. Keyes, Mo. Geol. Surv., vol. 5, p. 28.
Keokuk L. S.: Warsaw, Illinois.

?Polypora grandis Toulou.

1875. *Polypora grandis*. Toulou, N. Jahrb. fur Min. Geol. and Pal., p. 230, taf. 9, figs. 7a, b.
Permian-Carboniferous: Spitzbergen.
1878. *Polypora grandis*? Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 621.
Carboniferous: Feilden Isthmus, latitude 82° 43'.

Polypora hallana Prout. (Not *P. hallana* Nicholson, 1874.)

1860. *Polypora Halliana*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 580.
Warsaw L. S.: Warsaw, Illinois.
1866. *Polypora Halliana*. Prout, Geol. Surv. Ill., vol. 2, p. 421, pl. 21, figs. 4-4b.
St. Louis Group: Warsaw, Illinois.
1890. *Polypora halliana*. Ulrich, Geol. Surv. Ill., vol. 8, p. 587, pl. 59, figs. 5-5c.
Keokuk Group: Numerous localities in Iowa and Illinois.
Warsaw Beds: Warsaw, Illinois.
1894. *Polypora halliana*. Keyes, Mo. Geol. Surv., vol. 5, p. 28.
Keokuk L. S.: Clark County, Missouri.

Polypora impressa Ulrich.

1888. *Polypora impressa*. Ulrich, Bull. Den. Univ., vol. 4, p. 72, pl. 13, figs. 8, 8a.
Cuyahoga Shale: Richfield, Ohio.

Polypora maccoyana Ulrich.

1890. *Polypora maccoyana*. Ulrich, Geol. Surv. Ill., vol. 8, p. 588, pl. 59,
figs. 3-3d.
Keokuk Group: Nauvoo and near Plymouth, Illinois; Keokuk and Bentonport, Iowa.
1894. *Polypora maccoyana*. Keyes, Mo. Geol. Surv., vol. 5, p. 28.
Keokuk L. S.: Keokuk, Iowa.

Polypora marginata Geinitz. [Not *P. marginata* McCoy, 1844.] See *Polypora submarginata*.**? Polypora megastoma** De Koninck.

1862. *Polypora megastoma*. De Koninck, Quart. Jour. Geol. Soc. Lond., vol. 19,
p. 5, pl. 2, fig. 3.
Upper Carboniferous: India.
1878. *Polypora megastoma* ? Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34,
p. 621.
Carboniferous: Fielden Isthmus, latitude 82° 43'.

Polypora mexicana Prout.

1858. *Polypora Mexicana*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 270.
Permian: Jornada del Muerto, New Mexico.
1859. *Polypora Mexicana*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 451, pl.
16, figs. 2-2b.

Polypora nodocarinata Ulrich.

1890. *Polypora nodocarinata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 601, pl. 61,
figs. 9, 9a.
Upper Coal Measures: Crooked Creek, near Centralia, Illinois; Macoupin County, Illinois.

Polypora radialis Ulrich.

1888. *Polypora radialis*. Ulrich, Bull. Den. Univ., vol. 4, p. 74.
Waverly Group: Near Newark, Ohio.
1890. *Polypora radialis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 591, pl. 60, figs. 1-1d.
Keokuk Group: Keokuk, Iowa.
1894. *Polypora radialis*. Keyes, Mo. Geol. Surv., vol. 5, p. 29.
Keokuk L. S.: Keokuk, Iowa.

Polypora retrorsa Ulrich.

1890. *Polypora retrorsa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 591, pl. 59, figs. 6-6d.
Keokuk Group: Keokuk, Iowa.
1894. *Polypora retrorsa*. Keyes, Mo. Geol. Surv., vol. 5, p. 29.
Keokuk L. S.: Keokuk, Iowa.

Polypora simulatrix Ulrich.

1890. *Polypora simulatrix*. Ulrich, Geol. Surv. Ill., vol. 8, p. 589, pl. 59, figs. 4-4b.
Keokuk Group: Henderson County, Nauvoo and Warsaw, Illinois; Keokuk and Bentonsport, Iowa.
1894. *Polypora simulatrix*. Keyes, Mo. Geol. Surv., vol. 5, p. 28.
Keokuk L. S.: Keokuk, Iowa.

Polypora spininodata Ulrich.

1890. *Polypora spininodata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 594, pl. 60, fig. 3.
Warsaw Beds: Warsaw, Illinois.
1894. *Polypora spininodata*. Keyes, Mo. Geol. Surv., vol. 5, p. 29.
Keokuk L. S.: Warsaw, Illinois.

Polypora spinulifera Ulrich.

1890. *Polypora spinulifera*. Ulrich, Geol. Surv. Ill., vol. 8, p. 598, pl. 61, figs. 2, 2a, 3, 3a, 4, 4a.
Chester Group: Monroe County and Chester, Illinois.
Coal Measures: Montgomery County, Illinois; near Red Oak, Iowa.
1894. *Polypora spinulifera*. Keyes, Mo. Geol. Surv., vol. 5, p. 30.
Kaskaskia L. S.: Chester, Illinois.

Polypora stragula White.

1866. *Polypora biarmica* (?) Geinitz, Carb. und Dyas in Nebr., p. 68, tab. 5, figs. 13a, b.
Nebraska City, Nebraska.
1872. *Polypora* (sp. undetermined.) Meek, U. S. Geol. Surv. Nebr., p. 155, pl. 7, fig. 6.
Upper Coal Measures: Nebraska City, Nebraska.
1874. *Polypora stragula*. White, Prelim. Rep. Inv. Foss., p. 19.
Carboniferous: Confluence of White Mountain and Black rivers, Arizona.
1877. *Polypora stragula*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 108, pl. 7, figs. 4a, b.
Carboniferous: Confluence of White Mountain and Black rivers, Arizona.

Polypora submarginata Meek.

1866. *Polypora marginata*. Geinitz, Carb. und Dyas in Nebr., p. 69, tab. 5, figs. 11a, b, 12a, b.
Plattsmouth, Nebraska.
1872. *Polypora submarginata*. Meek, U. S. Geol. Surv. Nebr., p. 154, pl. 7, figs. 7a, b.
Upper Coal Measures: Nebraska City, Nebraska.
1890. *Polypora submarginata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 602, pl. 61, figs. 6-6b.
Upper Coal Measures: Macoupin County, Illinois; Lasalle and Springfield, Illinois; near Red Oak, Iowa.
1894. *Polypora submarginata*. Keyes, Mo. Geol. Surv., vol. 5, p. 30.
Upper Coal Measures: Kansas City, Missouri, ? Red Oak, Iowa.

Polypora tuberculata Prout. (Not *P. tuberculata* Nicholson, 1874.)

1859. *Polypora tuberculata*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 449, pl. 18, fig. 3.
Upper Archimedes L. S.: Chester, Illinois.
1890. *Polypora tuberculata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 595, pl. 60, fig. 8.
Chester Group: Chester, Illinois; Litchfield, Kentucky.
1894. *Polypora tuberculata*. Keyes, Mo. Geol. Surv., vol. 5, p. 30.
Kaskaskia L. S.: Chester, Illinois.

Polypora warsoviensis Prout.

1858. *Polypora Warsoviensis*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 237.
Warsaw, Illinois.

Polypora varsoviensis Prout—Continued.

1889. *Polypora Varsouviensis*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 451, pl. 15, figs. 3-3d.
 1890. *Polypora varsoriensis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 593, pl. 60, figs. 2-2b. Warsaw Beds: Monroe County and Warsaw, Illinois.
 St. Louis L. S.: Barrett's Station, Missouri.
 1891. *Polypora Varsouviensis?* Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 578. Maxville L. S.: Newtonville, Ohio.
 1894. *Polypora varsoviensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 29. St. Louis L. S.: Barrett's Station, Missouri.
 1895. *Polypora Varsouviensis?* Whitfield, Geol. Surv. Ohio, vol. 7, p. 467. Maxville L. S.: Newtonville, Ohio.

Polypora whitei Ulrich.

1890. *Polypora whitei*. Ulrich, Geol. Surv. Ill., vol. 8, p. 600, pl. 62, fig. 2. Base of Coal Measures: Seville, Illinois.

Polypora whitei var. *insculpta* Ulrich.

1890. *Polypora whitei* var. *insculpta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 600, pl. 62, fig. 1. Upper Coal Measures: Springfield, Illinois.

Polypora (species undetermined).

1876. *Polypora* — ? —. White, Powell's Rep. Geol. Uinta Mts., p. 89. Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
 1878. *Polypora* sp. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 624. Carboniferous: Feilden Isthmus, latitude 82° 43'.

PONTOCYPRIS Sars.**Pontocypris?** *acuminata* Ulrich.

1891. *Pontocypris (?) acuminata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 210, pl. 17, figs. 8a-c. Lower Waverly Group: Moot's Run, near Granville, Ohio.

POPANOCERAS Hyatt, 1883.**Popanoceras parkeri** Heilprin.

1884. *Ammonites Parkeri*. Heilprin, Proc. Acad. Nat. Sci. Phil., p. 53, figs. 1, 2. Carboniferous: Wise County, Texas.

Popanoceras walcotti White.

1889. *Popanoceras walcotti*. White, Am. Nat., vol. 23, p. 117, pl. 1, figs. 9-11. Permian: Baylor County, Texas.
 1891. *Popanoceras walcotti*. White, Bull. U. S. Geol. Surv., No. 77, p. 21, pl. 1, figs. 9-11. Permian: Military Crossing of the Big Wichita, Baylor County, Texas.

PORCELLIA Leveille, 1835.**Porcellia crassinoda** White and Whitfield.

1862. *Porcellia crassinoda*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 303. Chemung Group: Burlington, Iowa.
 1889. *Porcellia crassinoda*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 298. Kinderhook Group: Burlington, Iowa.

Porcellia nodosa Hall.

1860. *Porcellia nodosa*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 92. Burlington L. S.: Illinois.

Porcellia nodosa Hall—Continued.

1868. *Porcellia nodosa*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 458, pl. 14, figs. 1a, b.
 Kinderhook Group: Barry, Pike County, Illinois.
1889. *Porcellia nodosa*. Rowley, Am. Geol., vol. 3, p. 276.
 Lower Burlington Chert: Louisiana, Missouri.
1894. *Porcellia nodosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 154, pl. 51, fig. 4.
 Burlington L. S.: Louisiana, Missouri.

Porcellia obliquinoda White.

1862. *Porcellia obliquinoda*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 21.
 Chemung S. S.: Burlington, Iowa.

Porcellia peoriensis Worthen.

1884. *Porcellia peoriensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 6.
 Lower Coal Measures: Peoria County, Illinois.
1890. *Porcellia peoriensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 138, pl. 23, figs. 4a, b.
 Lower Coal Measures: Peoria County, Illinois.

Porcellia rectinoda Winchell.

1863. *Porcellia rectinoda*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 18.
 Yellow S. S.: Burlington, Iowa.

POROBLATTINA Scudder, 1885.**Poroblattina complexinervis Scudder.**

1895. *Poroblattina complexinervis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 139, pl. 11, fig. 14.
 Lower Permian: Cassville, West Virginia.

Poroblattina fossa Scudder.

1895. *Poroblattina fossa*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 137, pl. 11, fig. 15.
 Lower Permian: Cassville, West Virginia.

Poroblattina gratiosa Scudder.

1895. *Poroblattina gratiosa*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 136, pl. 11, fig. 13.
 Lower Permian: Cassville, West Virginia.

Poroblattina longinqua Scudder.

1895. *Poroblattina longinqua*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 135, pl. 11, fig. 12.
 Lower Coal Measures: Wills Creek, Richmond, Ohio.

Poroblattina ohioensis Scudder.

1895. *Poroblattina ohioensis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 138, pl. 11, fig. 1.
 Lower Coal Measures: Wills Creek, Richmond, Ohio.

POSIDONIA Bronn, 1837.**Posidonia clathrata Lea.**

1853. *Posidonia ? clathrata*. Lea, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 205, pl. 20, fig. 1b.
 Coal Formation: Wilkesbarre, Pennsylvania.

Posidonia distans Lea.

1853. *Posidonia ? distans*. Lea, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 205, pl. 20, fig. 3b.
 Coal Formation: Wilkesbarre, Pennsylvania.

Posidonia moorei Gabb.

1859. *Posidonia Moorei*. Gabb, Proc. Acad. Nat. Sci. Phil., p. 297.

Coal Measures: Fort Belknap, Texas.

1860. *Posidonia Moorei*. Gabb, Proc. Acad. Nat. Sci. Phil., p. 55, pl. 1, fig. 2.

Posidonia perstriata Lea.

1853. *Posidonia ? perstriata*. Lea, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 205, pl. 20, fig. 3a.

Coal Formation: Wilkesbarre, Pennsylvania.

POSIDONOMYA Bronn, 1837.**Posidonomya ambigua** Winchell.

1863. *Posidonomya ? ambigua*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 10.

Yellow S. S.: Burlington, Iowa.

Posidonomya fracta Meek.

1875. *Posidonomya fracta*. Meek, Pal. Ohio, vol. 2, p. 333, pl. 19, figs. 7a, b.

Coal Measures: Flint Ridge, Ohio.

1887. *Posidonomya fracta*. Herrick, Bull. Den. Univ., vol. 2, p. 43.

Coal Measures: Flint Ridge, Ohio.

Posidonomya fragilis Herrick.

1888. *Posidonomya (Streblopteria) fragilis*. Herrick, Bull. Den. Univ., vol. 3, p. 59, pl. 6, fig. 1.

Waverly Group: Licking County, Ohio.

1895. *Posidonomya (Streblopteria) fragilis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 18.

Cuyahoga Shale: Moot's Run, Ohio.

Posidonomya fragosa Meek.

1877. *Posidonomya ? fragosa*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 92, pl. 3, figs. 8, 8a.

Devonian or Carboniferous: White Pine Mountains, near Hamilton, Nevada.

Posidonomya lasallensis Miller and Gurley.

1896. *Posidonomya lasallensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 12, pl. 1, figs. 17, 18.

Coal Measures: Lasalle, Illinois.

Posidonomya mesambonata Winchell.

1862. *Posidonomya mesambonata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 421.

Marshall Group: Marshall and Moscow, Michigan.

Posidonomya romingeri Winchell.

1862. *Posidonomya Romingeri*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 420.

Marshall Group: Marshall, Michigan.

Posidonomya striata Stevens.

1858. *Posidonomya striata*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 265.

Coal Measures: Summit, Ohio.

Posidonomya whiteana Winchell.

1862. *Posidonomya Whiteana*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 420.

Marshall Group: Marshall, Michigan.

POTERIOCERAS McCoy, 1844.**Poterioceras missouriense** Miller.

1892. *Poterioceras missouriense*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 70, pl. 11, fig. 6.

Chouteau L. S.: Near Sedalia, Missouri.

Poterioceras missouriense Miller—Continued.

1894. *Poterioceras missouriense*. Miller, 18th Rep. Geol. Surv. Ind., p. 324, pl. 11 fig. 6.

Chouteau L. S: Near Sedalia, Missouri.

Poterioceras jerseyense Miller and Gurley.

1896. *Poterioceras jerseyense*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 32, pl. 4, fig. 3.

Kinderhook Group: Jersey County, Illinois.

POTERIOCRINUS Miller, 1821.**Poteriocrinus agnatus** Miller.

1891. *Poteriocrinus agnatus*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 43, pl. 8, figs. 6, 7.

Keokuk Group: Boonville, Missouri.

1892. *Poteriocrinus agnatus*. Miller, 17th Rep. Geol. Surv. Ind., p. 653, pl. 8, figs. 6, 7.

Keokuk Group: Boonville, Missouri.

Poteriocrinus albersi Miller and Gurley.

1896. *Poteriocrinus albersi*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 29, pl. 2, figs. 15-17.

Kaskaskia Group: Monroe County, Illinois.

Poteriocrinus altonensis Miller and Gurley.

1895. *Poteriocrinus altonensis*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 62, pl. 4, figs. 3, 4.

St. Louis Group: Alton, Illinois.

Poteriocrinus amænus Miller.

1891. *Poteriocrinus amænus*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 45, pl. 9, fig. 6.

Keokuk Group: Indian Creek, Montgomery County, Indiana.

1892. *Poteriocrinus amænus*. Miller, 17th Rep. Geol. Surv. Ind., p. 655, pl. 9, fig. 6.

Keokuk Group: Indian Creek, Montgomery County, Indiana.

Poteriocrinus anomalus Wetherby.

1880. *Poteriocrinus anomalus*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 3, p. 158, pl. 5, figs. 6-6b.

Kaskaskia Group: Pulaaki County, Kentucky.

Poteriocrinus aqualis. See *Scaphiocrinus æqualis*.**Poteriocrinus arachnæformis** Worthen.

1882. *Poteriocrinus arachnæformis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 13.

Keokuk L. S: Warsaw, Illinois.

1883. *Poteriocrinus arachnæformis*. Worthen, Geol. Surv. Ill., vol. 7, p. 281, pl. 28, fig. 12.

Keokuk L. S: Warsaw, Illinois.

Poteriocrinus arcanus Miller and Gurley.

1890. *Poteriocrinus arcanus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 348, pl. 5, fig. 4.

Keokuk Group: Washington County, Indiana.

Poteriocrinus arrectarius Miller and Gurley.

1896. *Poteriocrinus arrectarius*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 33, pl. 4, fig. 6.

St. Louis Group: Alton, Illinois.

Poteriocrinus asper. See *Scaphiocrinus extensus*.

Poteriocrinus asperatus. See *Woodocrinus asperatus*.

Poteriocrinus barrisi. See *Cyathocrinus barrisi*.

Poteriocrinus bayensis. See *Decadocrinus bayensis*.

Poteriocrinus bisselli. See *Scytalocrinus bisselli*.

***Poteriocrinus blairi* Miller and Gurley.**

1895. *Poteriocrinus blairi*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 61, pl. 4, figs. 1, 2.

Burlington Group: Sedalia, Missouri.

***Poteriocrinus boonvillensis* Miller.**

1891. *Poteriocrinus boonvillensis*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 42, pl. 8, figs. 3, 4.

Keokuk Group: Boonville, Missouri.

1892. *Poteriocrinus boonvillensis*. Miller, 17th Rep. Geol. Surv. Ind., p. 652, pl. 8, figs. 3, 4.

Keokuk Group: Boonville, Missouri.

***Poteriocrinus bozemanensis* Miller and Gurley.**

1896 *Poteriocrinus bozemanensis*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 82, pl. 5, figs. 10, 11.

Subcarboniferous: Bridger Mountains, near Bozeman, Montana.

Poteriocrinus briærius. See *Scaphiocrinus briærius*.

***Poteriocrinus brittsi* Miller.**

1891. *Poteriocrinus Brittsi*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 30, pl. 4, figs. 5, 6.

Keokuk Group: Boonville, Missouri.

1894 *Poteriocrinus brittsi*. Keyes, Mo. Geol. Surv., vol. 4, p. 211.

Keokuk L. S.: Boonville, Missouri.

***Poteriocrinus broadheadi* Miller and Gurley.**

1895. *Poteriocrinus broadheadi*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 63, pl. 4, figs. 7, 8.

Chouteau L. S.: Near Sedalia, Missouri.

Poteriocrinus burketi. See *Scaphiocrinus burketi*.

Poteriocrinus bursæformis. See *Woodocrinus bursæformis*.

***Poteriocrinus calyculus* Hall.**

1858. *Poteriocrinus calyculus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 553, pl. 9, figs. 6a-c.

Burlington L. S.: Burlington, Iowa.

1860. *Poteriocrinus calyculus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, pl. 2, fig. 11.

1872. *Scaphiocrinus calyculus*. Hall, Photo. Plates of Crinoids, pl. 6, fig. 1.

***Poteriocrinus cantonensis* Miller and Gurley.**

1890. *Poteriocrinus cantonensis*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 358, pl. 8, figs. 3, 4.

Keokuk Group: Near Canton, Indiana.

Poteriocrinus carbonarius. See *Graphiocrinus carbonarius*.

Poteriocrinus carinatus. See *Scaphiocrinus carinatus* and *Woodocrinus liliiformis*.

***Poteriocrinus circumtextus* Miller and Gurley.**

1894. *Poteriocrinus circumtextus*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 31, pl. 2, figs. 29, 30.

Keokuk Group: Crawfordsville, Indiana.

Poteriocrinus claytonensis. See *Woodocrinus claytonensis*.

Poteriocrinus clytis Worthen.

1882. *Poteriocrinus clytis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 16.
St. Louis L. S.: Monroe County, Illinois.

1883. *Poteriocrinus clytis*. Worthen, Geol. Surv. Ill., vol. 7, p. 294, pl. 30, fig. 10.
St. Louis L. S.: Monroe County, Illinois.

Also see *Scaphiocrinus venustus*.

Poteriocrinus columbiensis. See *Decadocrinus columbiensis*.

Poteriocrinus concinnus. See *Woodocrinus concinnus*.

Poteriocrinus coreyi. See *Scytalocrinus grandis*.

Poteriocrinus corycia. See *Scaphiocrinus corycia*.

Poteriocrinus coryphaeus Miller.

1891. *Poteriocrinus coryphaeus*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind.,
p. 44, pl. 9, fig. 1.

Keokuk Group: Indian Creek, Montgomery County, Indiana.

1892. *Poteriocrinus coryphaeus*. Miller, 17th Rep. Geol. Surv. Ind., p. 654, pl. 9,
fig. 4.

Keokuk Group: Indian Creek, Montgomery County, Indiana.

Poteriocrinus coxanus. See *Scaphiocrinus coxanus*.

Poteriocrinus crawfordsvillensis Miller and Gurley.

1890. *Poteriocrinus crawfordsvillensis*. Miller and Gurley, Jour. Cinn. Soc. Nat.
Hist., vol. 13, p. 23, pl. 4, fig. 8.

Keokuk Group: Crawfordsville, Indiana.

1890. *Poteriocrinus crawfordsvillensis*. Miller and Gurley, 16th Rep. Geol. Surv.
Ind., p. 344, pl. 4, fig. 8.

Keokuk Group: Crawfordsville, Indiana.

Poteriocrinus crineus. See *Scaphiocrinus crineus*.

Poteriocrinus cultidactylus. See *Scaphiocrinus cultidactylus*.

Poteriocrinus decadactylus. See *Scytalocrinus decadactylus*.

Poteriocrinus dilatatus. See *Oeliocrinus dilatatus*.

Poteriocrinus doris Hall.

1861. *Scaphiocrinus doris*. Hall, Desc. New Spec. Crin., p. 7.
Burlington L. S.

1861. *Scaphiocrinus doris*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 312.
Burlington L. S.: Burlington, Iowa.

Poteriocrinus douglassi Miller and Gurley.

1896. *Poteriocrinus douglassi*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat.
Hist., p. 83, pl. 5, figs. 16, 17.

Subcarboniferous: Bridger Mountains, Bozeman, Montana.

Poteriocrinus elsahensis Worthen.

1890. *Poteriocrinus elsahensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 88, pl. 14, fig. 5.
Kinderhook Group: Near Elsah, Jersey County, Illinois.

Poteriocrinus enormis. See *Cyathocrinus enormis*.

Poteriocrinus fountainensis. See *Decadocrinus fountainensis*.

Poteriocrinus fusiformis. See *Scytalocrinus macrodactylus*.

Poteriocrinus genista Miller and Gurley.

1890. *Poteriocrinus genista*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 357,
pl. 7, fig. 3.

Kinderhook Group: Legrand, Iowa.

Poteriocrinus granilineus Miller and Gurley.

1890. *Poteriocrinus granilineus*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 22, pl. 4, fig. 7.

Keokuk Group: Crawfordsville, Indiana.

1890. *Poteriocrinus granilineus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 343, pl. 4, fig. 7.

Keokuk Group: Crawfordsville, Indiana.

Poteriocrinus hamiltonensis. See *Scytalocrinus robustus*.**Poteriocrinus hammondi** Miller and Gurley.

1894. *Poteriocrinus hammondi*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 35, pl. 3, figs. 7, 8.

Kinderhook Group: Legrand, Iowa.

Poteriocrinus hardinensis Worthen.

1873. *Poteriocrinites Hardinensis*. Worthen, Geol. Surv. Ill., vol. 5, p. 533, pl. 20, fig. 10.

St. Louis L. S.: Roseclaire, Hardin County, Illinois.

Poteriocrinus hemisphericus. See *Oeriocrinus hemisphericus*.**Poteriocrinus hoveyi**. See *Scytalocrinus robustus*.**Poteriocrinus illinoisensis** Worthen.

1882. *Poteriocrinus illinoiensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 19.

Warsaw Beds: Warsaw, Illinois.

1883. *Poteriocrinus Illinoiensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 289, pl. 28, figs. 17.

Warsaw Beds: Warsaw, Illinois.

Poteriocrinus indianensis. See *Scytalocrinus indianensis*.**Poteriocrinus iowensis**. See *Scaphiocrinus iowensis*.**Poteriocrinus jesupi**. See *Scaphiocrinus swallovi*.**Poteriocrinus kaskaskiensis**. See *Scaphiocrinus kaskaskiensis*.**Poteriocrinus keokuk**. See *Scaphiocrinus keokuk*.**Poteriocrinus labyrinthicus** Miller and Gurley.

1896. *Poteriocrinus labyrinthicus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 34, pl. 4, fig. 7.

Keokuk Group: Boonville, Missouri.

Poteriocrinus lasallensis Worthen.

1875. *Poteriocrinus La Sallensis*. Worthen, Geol. Surv. Ill., vol. 6, p. 526, pl. 32, fig. 3.

Upper Coal Measures: Lasalle, Illinois.

Poteriocrinus latidactylus. See *Scaphiocrinus latidactylus*.**Poteriocrinus lautus** Miller and Gurley.

1896. *Poteriocrinus lautus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 30, pl. 2, figs. 18, 19.

Keokuk Group: Boonville, Missouri.

Poteriocrinus legrandensis Miller and Gurley.

1890. *Poteriocrinus legrandensis*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 357, pl. 7, figs. 4-6.

Kinderhook Group: Legrand, Iowa.

Poteriocrinus lepidus Hall.

1861. *Poteriocrinus lepidus*. Hall, Desc. New Spec. Crin., p. 6.

Burlington L. S.

Poteriocrinus lepidus Hall—Continued.

1861. *Poteriocrinus lepidus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 304.
Burlington L. S.: Burlington, Iowa.

Poteriocrinus longidactylus*. See Scaphiocrinus missouriensis.**Poteriocrinus maccabei* Miller and Gurley.**

1894. *Poteriocrinus maccabei*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 34, pl. 3, figs. 3-6.
Kinderhook Group: LeGrand, Iowa.

***Poteriocrinus maccabei* var. *decrepitus* Miller and Gurley.**

1894. *Poteriocrinus maccabei* var. *decrepitus*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 36, pl. 3, figs. 9-12.
Kinderhook Group: LeGrand, Iowa.

***Poteriocrinus macoupinensis* Worthen.**

1873. *Poteriocrinites Macoupinensis*. Worthen, Geol. Surv. Ill., vol. 5, p. 561, pl. 24, fig. 3.
Upper Coal Measures: Macoupin County, Illinois.

***Poteriocrinus mammaeformis* Worthen.**

1890. *Poteriocrinus mammaeformis*. Worthen, Geol. Surv. Ill., vol. 8, p. 91.
Warsaw L. S.: Warsaw, Illinois.

Poteriocrinus meekianus*. See Barycrinus meekianus.**Poteriocrinus milleri*. See Decadocrinus milleri.*****Poteriocrinus missouriensis*. See Scaphiocrinus missouriensis.*****Poteriocrinus montanensis*. See Scaphiocrinus montanensis.*****Poteriocrinus nauvoensis*. See Scaphiocrinus nauvoensis.*****Poteriocrinus neglectus* Miller and Gurley.**

1896. *Poteriocrinus neglectus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 31, pl. 4, figs. 3-5.
Keokuk Group: Boonville, Missouri.

***Poteriocrinus nodobasalis* Worthen.**

1890. *Poteriocrinus nodobasalis*. Worthen, Geol. Surv. Ill., vol. 8, p. 89, pl. 12, figs. 3, 3a; pl. 13, fig. 6.
St. Louis L. S.: Monroe County, Illinois.

Poteriocrinus norwoodi*. See Scaphiocrinus norwoodi.**Poteriocrinus notabilis* Meek and Worthen.**

1869. *Scaphiocrinus notabilis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 147.
Lower Burlington L. S.: Burlington, Iowa.
1873. *Scaphiocrinus notabilis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 410, pl. 1, fig. 9.
Burlington L. S.: Burlington, Iowa.

***Poteriocrinus obuncus* White.**

1862. *Poteriocrinus obuncus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 9.
Lower Burlington L. S.: Burlington, Iowa.

Poteriocrinus occidentalis*. See Agassizocrinus occidentalis and Scaphiocrinus occidentalis.**Poteriocrinus okawensis*. See Scaphiocrinus okawensis.*****Poteriocrinus orestes*. See Scaphiocrinus orestes.**

Poteriocrinus otterensis Worthen.

1882. *Poteriocrinus otterensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 14.

Keokuk L. S.: Otter Creek, Jersey County, Illinois.

1883. *Poteriocrinus Otterensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 283, pl. 28, fig. 4.

Keokuk L. S.: Otter Creek, Jersey County, Illinois.

Poteriocrinus peculiaris. See *Scaphiocrinus renustus*.

Poteriocrinus pencilliformis. See *Decadocrinus pencilliformis*.

Poteriocrinus perplexus. See *Parisocrinus perplexus*.

Poteriocrinus pleias. See *Decadocrinus pleias*.

Poteriocrinus popensis. See *Scaphiocrinus popensis*.

Poteriocrinus proboscidualis. See *Scaphiocrinus proboscidualis*.

Poteriocrinus propinquus. See *Scaphiocrinus propinquus*.

Poteriocrinus pulaskiensis Miller and Gurley.

1896. *Poteriocrinus pulaskiensis*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 39, pl. 3, figs. 26, 27.

Kaskaskia Group: Pulaski County, Kentucky.

Poteriocrinus rhombiferus. See *Barycrinus rhombiferus*.

Poteriocrinus richfieldensis. See *Woodocrinus richfieldensis*.

Poteriocrinus rowleyi Worthen.

1890. *Poteriocrinus rowleyi*. Worthen, Geol. Surv. Ill., vol. 8, p. 90, pl. 14, fig. 9.

Chester L. S.: Monroe County, Illinois.

Poteriocrinus rugosus Shumard.

1858. *Poteriocrinus rugosus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 223.

Coal Measures: Missouri River Bluffs and Putnam County, near Blackbird Creek, Missouri.

Poteriocrinus salignoides. See *Parisocrinus salignoides*.

Poteriocrinus salteri. See *Scaphiocrinus salteri*.

Poteriocrinus sampsoni Miller and Gurley.

1895. *Poteriocrinus sampsoni*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 65, pl. 4, figs. 9, 10.

Chouteau, L. S.: Sedalia, Missouri.

Poteriocrinus scopæ Miller and Gurley.

1890. *Poteriocrinus scopæ*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 356, pl. 7, fig. 2.

Kinderhook Group: Legrand, Iowa.

1894. *Poteriocrinus scopæ*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 33, pl. 3, figs. 1, 2.

Kinderhook Group, Legrand, Iowa.

Poteriocrinus sculptus. See *Scaphiocrinus sculptus*.

Poteriocrinus similis Worthen.

1882. *Poteriocrinus similis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 23.

Chester L. S.: Monroe County, Illinois.

1883. *Poteriocrinus similis*. Worthen, Geol. Surv. Ill., vol. 7, p. 295, pl. 30, fig. 12.

Chester L. S.: Monroe County, Illinois.

Poteriocrinus solidus. See *Scaphiocrinus æqualis*.

Poteriocrinus spartarius Miller and Gurley.

1890. *Poteriocrinus spartarius*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 355, pl. 7, fig. 1.

Kinderhook Group: Legrand, Iowa.

Poteriocrinus spinobrachiatus. See *Scaphiocrinus spinobrachiatus*.

Poteriocrinus spinosus. See *Scaphiocrinus spinosus*.

Poteriocrinus spinuliferus Worthen.

1884. *Poteriocrinus spinuliferus*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 27.

Chester L. S.: Near Columbia, Monroe County, Illinois.

1890. *Poteriocrinus spinuliferus*. Worthen, Geol. Surv. Ill., vol. 8, p. 86, pl. 14, fig. 3.

Chester L. S.: Near Columbia, Monroe County, Illinois.

See also *Zeacrinus spinuliferus*.

Poteriocrinus subimpressus. See *Scaphiocrinus subimpressus*.

Poteriocrinus subramosus Miller and Gurley.

1890. *Poteriocrinus subramosus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 365, pl. 10, fig. 1.

Keokuk Group: Crawfordsville, Indiana.

Poteriocrinus subramulosus. See *Scaphiocrinus swallovi*.

Poteriocrinus subtumidus. See *Scaphiocrinus subtumidus*.

Poteriocrinus swallovi. See *Scaphiocrinus swallovi*.

Poteriocrinus talboti. See *Scytalocrinus talboti*.

Poteriocrinus tentaculatus. See *Woodocrinus tentaculatus*.

Poteriocrinus tenuibrachiatus. See *Parisocrinus tenuibrachiatus*.

Poteriocrinus tenuidactylus. See *Scaphiocrinus æqualis*, *Scaphiocrinus obscurus*, and *Woodocrinus tentaculatus*.

Poteriocrinus tumidus. See *Agassizocrinus occidentalis*.

Poteriocrinus ulrichi Worthen.

1890. *Poteriocrinus ulrichi*. Worthen, Geol. Surv. Ill., vol. 8, p. 87, pl. 17, fig. 2.

Keokuk L. S.: Keokuk, Iowa.

Poteriocrinus vagulus Miller and Gurley.

1895. *Poteriocrinus vagulus*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 46, pl. 4, figs. 10, 11.

Kaskaskia Group: Pulaski County, Kentucky.

Poteriocrinus validus Worthen.

1882. *Poteriocrinus validus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 18.

Warsaw Beds: Warsaw, Illinois.

1883. *Poteriocrinus validus*. Worthen, Geol. Surv. Ill., vol. 7, p. 287, pl. 28, fig. 16.

Warsaw Beds: Warsaw, Illinois.

Poteriocrinus vanhornei. See *Scytalocrinus vanhornei*.

Poteriocrinus varsouviensis. See *Scaphiocrinus varsouviensis*.

Poteriocrinus ventricosus. See *Cœliocrinus ventricosus*.

Poteriocrinus venustus. See *Scaphiocrinus venustus*.

Poteriocrinus verus Miller and Gurley.

1890. *Poteriocrinus verus*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 24, pl. 4, fig. 9.

Keokuk Group: Crawfordsville, Indiana.

Poteriocrinus verus Miller and Gurley—Continued.

1890. *Poteriocrinus verus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 344, pl. 4, fig. 9.

Keokuk Group: Crawfordsville, Indiana.

Poteriocrinus wachsmuthi. See *Graphiocrinus wachsmuthi*.**Poteriocrinus waltersi** Rowley and Hare.

1891. *Poteriocrinus waltersi*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 101, pl. 2, fig. 15.

Lower Burlington L. S.: Louisiana, Missouri

Poteriocrinus wetherbyi. See *Scytalocrinus wetherbyi*.**Poteriocrinus whitei** Hall

1861. *Scaphiocrinus whitei*. Hall, Desc. New Spec. Crin., p. 7.
Burlington L. S.

1861. *Scaphiocrinus Whitei*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 306.
Burlington L. S.: Burlington, Iowa.

Poteriocrinus (species undetermined).

1897. *Poteriocrinus* sp. undet. Smith, Proc. Am. Phil. Soc., vol. 35, p. 26.
Upper Coal Measures: Poteau Mountain, Indian Territory.

PRESTWICHIA Woodward, 1867.**Prestwichia colletti** White.

1884. *Euproops Colletti*. White, 13th Rep. Geol. Surv. Ind., p. 172, pl. 39, fig. 2.
Coal Measures: Durkee's Ferry, Vigo County, Indiana.

Prestwichia danæ Meek and Worthen.

1865. *Bellinurus Danæ*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 44.
Coal Measures: Morris, Illinois.
1866. *Bellinurus Danæ*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 395, pl. 32, figs. 2, 2a.
Lower Coal Measures: Morris, Grundy County, Illinois.
1867. *Prestwichia Danæ*. Meek, Am. Jour. Sci. (2), vol. 43, p. 257.
1867. *Euproops Danæ*. Meek, Am. Jour. Sci. (2), vol. 43, p. 394.
1868. *Euproops Danæ*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 547, fig. A.
Coal Measures: Mazon Creek, Grundy County, Illinois.
1884. *Euproops Danæ*. White, 13th Rep. Geol. Surv. Ind., p. 170, pl. 39, fig. 1.
Coal Measures: Mazon Creek, Grundy County, Illinois.
1886. *Prestwichia danæ*. Packard, Mem. Nat. Acad. Sci., vol. 3, pt. 2, p. 146, pl. 5, figs. 3, 3a; pl. 6, figs. 1, 1a, 2, 2a.
Carboniferous: Mazon Creek, Illinois.

Prestwichia longispina Packard.

1885. *Euproops longispina*. Packard, Am. Nat., vol. 19, p. 292.
Carboniferous: Wilkesbarre and Pittston, Pennsylvania.
1886. *Prestwichia longispina*. Packard, Mem. Nat. Acad. Sci., vol. 3, pt. 2, p. 147, pl. 5, fig. 4; pl. 6, fig. 3.
Carboniferous: Pittston and Wilkesbarre, Pennsylvania.

Prestwichia (species undetermined).

1897. *Prestwichia?* Smith, Proc. Am. Phil. Soc., vol. 35, p. 63.
Lower Coal Measures: White County, Arkansas.

PRIMITIA Jones, 1865.**Primitia cestriensis** Ulrich.

1891. *Primitia cestriensis*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 201.
Chester Group: Chester, Illinois.

Primitia cestriensis var. caldwellensis Ulrich.

1891. *Primitia cestriensis* var. *caldwellensis*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 202, pl. 14, figs. 7a-c.
Chester Group: Caldwell County, Kentucky.

Primitia granimarginata Ulrich.

1891. *Primitia granimarginata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 201, pl. 12, figs. 8a, b.
Chester Group: Near Grayson Springs Station, Kentucky.

Primitia simulans Ulrich.

1891. *Primitia simulans*. Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 201.
Chester Group: Chester, Illinois.

Primitia subaequata Ulrich.

1891. *Primitia subaequata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 202, pl. 14, figs. 8a-c.
Chester Group: Claxton, Caldwell County, Kentucky.

PRISMOPORA Hall, 1881.**Prismopora minima Ulrich.**

1890. *Prismopora minima*. Ulrich, Geol. Surv. Ill., vol. 8, p. 506, pl. 78, figs. 1-1c.
Lower Coal Measures: Sparta, Illinois.

Prismopora sereata Meek.

1875. *Ptilodictya* (*Stictopora*) *sereata*. Meek, Pal. Ohio, vol. 2, p. 327, pl. 20, fig. 4.
Lower Coal Measures: Flint Ridge, Ohio.
1887. *Prismopora sereata*. Foerste, Bull. Den. Univ., vol. 2, p. 75, pl. 7, figs. 6a-c.
Coal Measures: Bald Hill and Flint Ridge, Ohio.

Prismopora serrulata Ulrich.

1884. *Prismopora serrulata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 41, pl. 2, figs. 2-2f.
Kaskaskia Group: Tateville and Grayson Springs, Kentucky.

Prismopora triangulata White.

1878. *Ptilodictia triangulata*. White, Proc. Acad. Nat. Sci. Phil., p. 35.
Coal Measures: Danville, Illinois.
1879. *Ptilodictia triangulata*. White, Bull. U. S. Geol. and Geog. Surv. Terr., vol. 7, p. 214.
Carboniferous: Yampa Plateau, Northwestern Colorado.
1880. *Ptilodictia triangulata*. White, Cont. to Inv. Pal., No. 6, p. 131, pl. 33, figs. 3a-e.
Coal Measures: Danville, Illinois; Yampa Plateau, Northwestern Colorado; and region southward from Yellowstone National Park.
1881. *Ptilodictia triangulata*. White, U. S. Geog. Surv. W. 100 Merid., vol. 3, Supp., Appendix, p. xxiv, pl. 4, figs. 2a-c.
Carboniferous: Cebolla Creek and Coyote Creek, New Mexico.

Prismopora trifolia Rominger.

1866. *Fistulipora trifolia*. Rominger, Proc. Acad. Nat. Sci. Phil., p. 122.
Keokuk L. S.: Lagrange, Missouri.
1890. *Prismopora trifolia*. Ulrich, Geol. Surv. Ill., vol. 8, p. 505, pl. 77, figs. 4-4a.
Keokuk Group: Keokuk, Iowa; Lagrange, Missouri; Warsaw, Illinois.
1894. *Prismopora trifolia*. Keyes, Mo. Geol. Surv., vol. 5, p. 18.
Keokuk L. S.: Lagrange, Missouri; Keokuk, Iowa.

PRODUCTELLA Hall, 1867.*Productella arcuata.* See *Productus arcuatus*.**Productella concentrica** Hall.

1857. *Productus concentricus*. Hall, 10th Rep. N. Y. State Cab. Nat. Hist., p. 180.
Chemung S. S.: Burlington, Iowa.
1858. *Productus concentricus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 517, pl. 7, fig. 3.
Chemung Group: Burlington, Iowa.
1862. *Producta concentrica*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 411.
Marshall Group: Pointe Aux Barques, Michigan.
1865. *Producta concentrica*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 114.
Marshall Group: Northern and Southern Michigan; Burlington, Iowa;
Rockford, Indiana.
1869. *Producta concentrica*. Winchell, Safford's Geol. Tenn., p. 443.
Shales just above Black Shale: Hickman and Maury counties, Tennessee.
1870. *Producta concentrica*. Winchell, Proc. Am. Phil. Soc., vol. 1, p. 249.
Waverly Group: Tennessee; Sciotoville, Ohio.
1888. *Productus concentricus*. Herrick, Bull. Den. Univ., vol. 3, p. 33, pl. 6, fig. 16.
Waverly Group: Licking County, Ohio.

Productella newberryi. See *Productus newberryi*.**Productella pyxidata** Hall.

1858. *Productus pyxidatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 498, pl. 3, figs. 8a-c.
Hamilton Group: Hamburg, Illinois; Louisiana, Missouri.
1883. *Productella pyxidata*. Hall, Rep. N. Y. State Geol. for 1882, pl. (17) 48,
fig. 34.
Devonian: Iowa.
1892. *Productella pyxidata*. Hall and Clarke, Int. to Study of Brach., pt. 1,
pl. 21, figs. 20, 23.
Chouteau L. S.: Pike County, Missouri.
1892. *Productella pyxidata*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17, fig. 34;
pl. 17A, fig. 14.
Chouteau L. S.: Pike County, Missouri.
1894. *Productella pyxidata*. Keyes, Mo. Geol. Surv., vol. 5, p. 52, pl. 38, figs. 4a-d.
Kinderhook Group: Louisiana, Hannibal, and Clarksville, Missouri.

Productella shumardiana Hall.

1858. *Productus shumardianus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 499, pl. 3, fig. 9;
pl. 7, fig. 1.
Hamilton Group: Clarksville, Missouri.
Chemung Group: Burlington, Iowa.
1867. *Productella shumardiana*. Hall, Pal. N. Y., vol. 4, p. 157, pl. 23, figs. 6-8.
Carboniferous L. S.: Williamsville, New York; Ohio; Illinois.
Hamilton Group: Lake Erie above Buffalo, Pratt's Falls, and Moscow, New
York; Hamburg, Illinois; Louisiana, Missouri; Burlington, Iowa.
1883. *Productella Shumardiana*. Hall, Rep. N. Y. State Geol. for 1882, pl. (17) 48,
fig. 7.
Sandstone: Burlington, Iowa.
1888. *Productus (Productella) shumardianus*. Herrick, Bull. Den. Univ., vol. 3,
p. 32, pl. 7, fig. 18; pl. 12, figs. 6, 43.
Waverly Group: Licking County, Ohio.
1892. *Productella Shumardiana*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17,
fig. 7.
Yellow Sandstone: Burlington, Iowa.

Primitia cestriensis var. caldwellensis Ulrich.

1891. *Primitia cestriensis* var. *caldwellensis*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 202, pl. 14, figs. 7a-c.
Chester Group: Caldwell County, Kentucky.

Primitia granimarginata Ulrich.

1891. *Primitia granimarginata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 201, pl. 12, figs. 8a, b.
Chester Group: Near Grayson Springs Station, Kentucky.

Primitia simulans Ulrich.

1891. *Primitia simulans*. Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 201.
Chester Group: Chester, Illinois.

Primitia subaequata Ulrich.

1891. *Primitia subaequata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 202, pl. 14, figs. 8a-c.
Chester Group: Claxton, Caldwell County, Kentucky.

PRISMOPORA Hall, 1881.**Prismopora minima** Ulrich.

1890. *Prismopora minima*. Ulrich, Geol. Surv. Ill., vol. 8, p. 506, pl. 78, figs. 1-1c.
Lower Coal Measures: Sparta, Illinois.

Prismopora sereata Meek.

1875. *Ptilodictya (Stictopora) sereata*. Meek, Pal. Ohio, vol. 2, p. 327, pl. 20, fig. 4.
Lower Coal Measures: Flint Ridge, Ohio.
1887. *Prismopora sereata*. Foerste, Bull. Den. Univ., vol. 2, p. 75, pl. 7, figs. 6a-c.
Coal Measures: Bald Hill and Flint Ridge, Ohio.

Prismopora serrulata Ulrich.

1884. *Prismopora serrulata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 41, pl. 2, figs. 2-2f.
Kaskaskia Group: Tateville and Grayson Springs, Kentucky.

Prismopora triangulata White.

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Coal Measures: Danville, Illinois.
1879. *Ptilodictia triangulata*. White, Bull. U. S. Geol. and Geog. Surv. Terr., vol. 7, p. 214.
Carboniferous: Yampa Plateau, Northwestern Colorado.
1880. *Ptilodictia triangulata*. White, Cont. to Inv. Pal., No. 6, p. 131, pl. 33, figs. 3a-e.
Coal Measures: Danville, Illinois; Yampa Plateau, Northwestern Colorado; and region southward from Yellowstone National Park.
1881. *Ptilodictia triangulata*. White, U. S. Geog. Surv. W. 100 Merid., vol. 3, Supp., Appendix, p. xxiv, pl. 4, figs. 2a-e.
Carboniferous: Cebolla Creek and Coyote Creek, New Mexico.

Prismopora trifolia Rominger.

1866. *Fistulipora trifolia*. Rominger, Proc. Acad. Nat. Sci. Phil., p. 122.
Keokuk L. S.: Lagrange, Missouri.
1890. *Prismopora trifolia*. Ulrich, Geol. Surv. Ill., vol. 8, p. 505, pl. 77, figs. 4-4a.
Keokuk Group: Keokuk, Iowa; Lagrange, Missouri; Warsaw, Illinois.
1894. *Prismopora trifolia*. Keyes, Mo. Geol. Surv., vol. 5, p. 18.
Keokuk L. S.: Lagrange, Missouri; Keokuk, Iowa.

PRODUCTELLA Hall, 1867.*Productella arcuata.* See *Productus arcuatus*.**Productella concentrica Hall.**

1857. *Productus concentricus*. Hall, 10th Rep. N. Y. State Cab. Nat. Hist., p. 180.
Chemung S. S.: Burlington, Iowa.
1858. *Productus concentricus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 517, pl. 7, fig. 3.
Chemung Group: Burlington, Iowa.
1862. *Producta concentrica*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 411.
Marshall Group: Pointe Aux Barques, Michigan.
1865. *Producta concentrica*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 114.
Marshall Group: Northern and Southern Michigan; Burlington, Iowa;
Rockford, Indiana.
1869. *Producta concentrica*. Winchell, Safford's Geol. Tenn., p. 443.
Shales just above Black Shale: Hickman and Maury counties, Tennessee.
1870. *Producta concentrica*. Winchell, Proc. Am. Phil. Soc., vol. 1, p. 249.
Waverly Group: Tennessee; Sciotoville, Ohio.
1888. *Productus concentricus*. Herrick, Bull. Den. Univ., vol. 3, p. 33, pl. 6, fig. 16.
Waverly Group: Licking County, Ohio.

Productella newberryi. See *Productus newberryi*.**Productella pyxidata Hall.**

1858. *Productus pyxidatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 498, pl. 3, figs. 8a-e.
Hamilton Group: Hamburg, Illinois; Louisiana, Missouri.
1883. *Productella pyxidata*. Hall, Rep. N. Y. State Geol. for 1882, pl. (17) 48,
fig. 34.
Devonian: Iowa.
1892. *Productella pyxidata*. Hall and Clarke, Int. to Study of Brach., pt. 1,
pl. 21, figs. 20, 23.
Chouteau L. S.: Pike County, Missouri.
1892. *Productella pyxidata*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17, fig. 34;
pl. 17A, fig. 14.
Chouteau L. S.: Pike County, Missouri.
1894. *Productella pyxidata*. Keyes, Mo. Geol. Surv., vol. 5, p. 52, pl. 38, figs. 4a-d.
Kinderhook Group: Louisiana, Hannibal, and Clarksville, Missouri.

Productella shumardiana Hall.

1858. *Productus shumardianus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 499, pl. 3, fig. 9;
pl. 7, fig. 1.
Hamilton Group: Clarksville, Missouri.
Chemung Group: Burlington, Iowa.
1867. *Productella shumardiana*. Hall, Pal. N. Y., vol. 4, p. 157, pl. 23, figs. 6-8.
Corniferous L. S.: Williamsville, New York; Ohio; Illinois.
Hamilton Group: Lake Erie above Buffalo, Pratt's Falls, and Moscow, New
York; Hamburg, Illinois; Louisiana, Missouri; Burlington, Iowa.
1883. *Productella Shumardiana*. Hall, Rep. N. Y. State Geol. for 1882, pl. (17) 48,
fig. 7.
Sandstone: Burlington, Iowa.
1888. *Productus (Productella) shumardianus*. Herrick, Bull. Den. Univ., vol. 3,
p. 32, pl. 7, fig. 18; pl. 12, figs. 6, 43.
Waverly Group: Licking County, Ohio.
1892. *Productella Shumardiana*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17,
fig. 7.
Yellow Sandstone: Burlington, Iowa.

Productella speciosa Hall.

1857. *Productus speciosus*. Hal. 10th Rep. N. Y. State Cab. Nat. Hist., p. 176.
Chemung Group: Chautauqua County, New York.
1863. *Producta speciosa*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 4.
Yellow S. S.: Burlington, Iowa.
1867. *Productella speciosa*. Hall, Pal. N. Y., vol. 4, p. 175, pl. 25, figs. 1-11.
Chemung Group: New York.
1888. *Productus (Productella) speciosus?* Herrick, Bull. Den. Univ., vol. 3, p. 34.
Waverly Group: Licking County, Ohio.

Productella spinulicosta Hall.

1857. *Productus spinulicosta*. Hall, 10th Rep. N. Y. State Cab. Nat. Hist., p. 173.
Hamilton Group: Cayuga Lake, New York.
1867. *Productella spinulicosta*. Hall, Pal. N. Y., vol. 4, p. 160, pl. 23, figs. 25-34.
Hamilton Group: Shores of Cayuga, Seneca, and Erie lakes, New York.
1883. *Productella spinulicosta?* Hall, Rep. N. Y. State Geol. for 1882, pl. (17) 48, fig. 6.
Waverly Group: Burlington, Iowa.
1892. *Productella spinulicosta*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17, figs. 3-6.
Corniferous L. S.: Louisville, Kentucky.
Marcellus Shale: Western New York.
Yellow Sandstone: Burlington, Iowa.

Productella subaculeata Murchison.

1867. *Productella subaculeata*. Hall, Pal. N. Y., vol. 4, p. 154, pl. 23, figs. 4, 5.
Corniferous L. S.: Falls of the Ohio.
1884. *Productus subaculeatus*. Walcott, Pal. Eureka Dist., p. 214, pl. 7, fig. 2.
Lower Carboniferous L. S.: Eureka District, Nevada.

Productella (species undetermined).

1883. *Productella*, sp? Hall, Rep. N. Y. State Geol. for 1882, pl. (18) 49, fig. 4.
Waverly S. S.: Newark, Ohio.
1888. *Productella?* Herrick, Bull. Den. Univ., vol. 3, fig. 24.
Waverly Group: Licking County, Ohio.

PRODUCTUS Sowerby, 1812.**Productus æquicostatus Shumard.**

1855. *Productus æquicostatus*. Shumard, Geol. Rep. Mo., p. 201, pl. C, fig. 10.
Upper Coal Measures: On Missouri River, at Iowa Point, Bondtown, Dallas, mouth of Platte River, and Weston.
1855. *Productus æquicostatus*. Schiel, Pac. R. R. Rep., vol. 2, p. 108, pl. 2, fig. 45.
Carboniferous L. S.: Willow Creek.
1892. *Productus æquicostatus*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 22, figs. 11, 12.
Coal Measures: Nebraska.
1892. *Productus æquicostatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17A, figs. 22, 23.
Coal Measures: Nebraska.

Productus alternatus Norwood and Pratten.

1855. *Productus alternatus*. Norwood and Pratten, Jour. Phil. Acad. Nat. Sci. (2), vol. 3, p. 20, pl. 2, figs. 1a-e.
Mountain L. S.: Rocky Run, Hancock County, Illinois.
1883. *Productus alternatus*. Hall, Rep. N. Y. State Geol. for 1882, pl. (18) 49, fig. 14.
Keokuk L. S.
1892. *Productus alternatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 18, fig. 14.
Keokuk Group: Illinois.

Productus altonensis Norwood and Pratten.

1855. *Productus altonensis*. Norwood and Pratten, Jour. Phil. Acad. Nat. Sci. (2), vol. 3, p. 7, pl. 1, figs. 1a-c.
Mountain L. S.: Alton, Illinois.
1894. *Productus altonensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 43.
St. Louis L. S.: St. Louis, Missouri.

Productus americanus Swallow.

1863. *Productus Americanus*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 91.
Upper Coal Measures: Harrison County, Missouri.
1894. *Productus americanus*. Keyes, Mo. Geol. Surv., vol. 5, p. 44.
Upper Coal Measures: Harrison County, Missouri.

Productus arcuatus Hall.

1858. *Productus arcuatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 518, pl. 7, figs. 4a, b.
Chemung Group: Burlington, Iowa.
1870. *Producta arcuata*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 250.
Waverly Group: Rockville and Granville, Ohio.
1883. *Productella arcuata*. Hall, Rep. N. Y. State Geol. for 1882, pl. (17) 48, figs. 31, 32.
Sandstone: Burlington, Iowa.
1888. *Productus arcuatus*. Herrick, Bull. Den. Univ., vol. 3, p. 31, pl. 3, fig. 18.
Waverly Group: Licking County, Ohio.
1892. *Productella arcuata*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17, figs. 31, 32.
Yellow S. S.: Burlington, Iowa.
1894. *Productus arcuatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 40.
Kinderhook Group: Hannibal, Missouri.

Productus asperus. See *Productus nebraskensis*.**Productus auriculatus** Swallow.

1863. *Productus auriculatus*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 92.
1892. *Productus* (? *auriculatus*, Swallow). Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 22, fig. 6.
Coal Measures: Near Kansas City, Missouri.
1892. *Productus* (? *auriculatus* Swallow). Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17A, fig. 24.
Coal Measures: Near Kansas City, Missouri.

Productus biseriatus Hall.

1856. *Productus biseriatus*. Hall, Trans. Albany Inst., vol. 4, p. 12.
St. Louis L. S.: Alton, Illinois; Bloomington, Indiana.
1882. *Productus biseriatus*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 46, pl. 6, figs. 8-12.
St. Louis Group: Spergen Hill, Paynter's Hill, and Bloomington, Indiana; Alton, Illinois.
1883. *Productus biseriatus*. Hall, 12th Rep. Geol. Surv. Ind., p. 325, pl. 29, figs. 8-12.
St. Louis Group: Alton, Illinois; Spergen Hill, Paynter's Hill, and Bloomington, Indiana.
1894. *Productus biseriatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 43.
Keokuk L. S.: St. Francisville, Missouri; Keokuk, Iowa.

Productus blairi Miller.

1891. *Productus blairi*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 79, pl. 13, figs. 16, 17.
Chouteau L. S.: Sedalia, Missouri.
1892. *Productus blairi*. Miller, 17th Rep. Geol. Surv. Ind., p. 689, pl. 13, figs. 16, 17.
Chouteau L. S.: Sedalia, Missouri.

Productus boliviensis D'Orbigny.

1847. *Productus boliviensis*. De Koninck, Monog. du Gen. Prod. et Chon., p. 77,
pl. 8, figs. 2 a-c.
Carboniferous L. S.: Bolivia, South America.
1855. *Productus Boliviensis*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2),
vol. 3, p. 11.
Coal Measures: 12 miles northwest of Richmond, Missouri.

Productus boonensis Swallow.

1858. *Productus Boonensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 217.
Coal Measures: Near mouth of Platte River, Nebraska; Kansas.

Productus boonensis var. elevata Swallow.

1858. *Productus Boonensis* var. *elevata*. Swallow, Trans. St. Louis Acad. Sci.,
vol. 1, p. 217.
Coal Measures: Kansas and Nebraska.

Productus buchianus de Koninck.

1855. *Productus Buchianus*. Norwood and Pratten, Jour. Acad. Nat. Sci.
Phil. (2), vol. 3, p. 20.
Coal Measures: Big Creek, Posey County, Indiana.

Productus burlingtonensis Hall.

1858. *Productus flemingi* var. *burlingtonensis*. Hall, Geol. Iowa, vol. 1, pt. 2,
p. 598, pl. 12, figs. 3 a-g.
Burlington L. S.: Burlington, Iowa; Quincy, Illinois.
1877. *Productus Flemingi* var. *Burlingtonensis*. Hall and Whitfield, U. S. Geol.
Exped., 40 Par., vol. 4, p. 285, pl. 5, figs. 9-12.
Lower Carboniferous L. S.: North of Snowstorm Hill, Dry Canyon,
Oquirrh Mountains, Utah.
1883. *Productus Flemingi* var. *Burlingtonensis*. Hall, Rep. N. Y. State Geol. for
1882, pl. (18) 49, figs. 6-8.
Burlington L. S.: Burlington, Iowa.
1888. *Productus flemingi* var. *burlingtonensis*. Herrick, Bull. Den. Univ., vol. 3,
p. 32, pl. 3, figs. 20 (22†).
Waverly Group: Licking County, Ohio.
1892. *Productus Flemingi* var. *Burlingtonensis*. Hall and Clarke, Pal. N. Y.,
vol. 8, pt. 1, pl. 18, figs. 6-8.
Burlington L. S.: Burlington, Iowa.
1894. *Productus burlingtonensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 41.
Burlington L. S.: Hannibal, Helton, Louisiana, Springfield, and Ash
Grove, Missouri.
Keokuk L. S.: St. Francisville and Boonville, Missouri.

Productus calhounianus Swallow.

1858. *Productus Calhounianus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1,
p. 181.
Lower Permian: Kansas.
1858. *Productus Calhounianus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 215.
Upper Coal Measures and Permian: Kansas.
1859. *Productus Calhounianus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1,
p. 389.
White and Dark Permian L. S.: Guadalupe Mountains.
1859. *Productus Calhounianus*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil.,
p. 26.
Upper Coal Measures: Fort Riley and Cottonwood Creek, Kansas.
1861. *Productus Calhounianus*. Newberry, Ives's Colo. Expl. Exped., p. 123.
Carboniferous: Kansas.

Also see *Productus cora*.

Productus calhounanus var. kansasensis Swallow.

1858. *Productus Calhounianus* var. *Kansasensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 216.

Upper Coal Measures and Permian: Kansas.

Mountain L. S. and Coal Measures: Missouri.

Productus cancrini*. See *Productus pertenuis*.*Productus carbonarius De Koninck.**

1855. *Productus carbonarius*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 11.

Mountain L. S.: Fountain Bluff, Illinois.

Productus cestriensis Worthen.

1855. *Productus elegans*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 3, pl. 1, figs. 7a-c. (Not *P. elegans* McCoy.)

Mountain L. S.: Chester and Kaskaskia, Illinois; Missouri, near Hat Island.

1860. *Productus Cestriensis*. Worthen, Trans. St. Louis Acad. Sci., vol. 1, p. 570.

Chester L. S.: Chester, Illinois.

1877. *Productus elegans*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 268, pl. 5, figs. 3, 4.

Lower Carboniferous L. S.: North of Snowstorm Hill, Dry Canyon Oquirrh Mountains, Utah.

1891. *Productus elegans*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 581, pl. 13, figs. 15, 16.

Maxville L. S.: Ohio.

1894. *Productus cestriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 44.

Kaskaskia L. S.: Ste. Mary, Missouri.

1895. *Productus elegans*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 669, pl. 9, figs. 15, 16.

Maxville L. S.: Ohio.

1897. *Productus cestriensis*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 256, pl. 18, figs. 7-9.

Batesville S. S.: Batesville, Arkansas.

Productus clavus Norwood and Pratten.

1855. *Productus clavus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 10, pl. 1, figs. 4a-c.

Coal Measures: Grayeville, Illinois.

Productus compressus Say.

1823. *Productus compressus*. Say, Long's Exped. to Rocky Mts., vol. 1, p. 150 (foot note).

Missouri River, 5 miles below Council Bluffs.

1897. *Productus compressus*. Harris, Bull. Am. Pal., vol. 1, p. 384 (114).

Productus concentricus*. See *Productella concentrica*.*Productus confragosus Conrad.**

1835. *Productus confragosus*. Conrad, Trans. Geol. Soc. Penn., vol. 1, pt. 2, p. 267, pl. 12, fig. 5.

Productus cooperensis Swallow.

1860. *Productus Copoerensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 640.

Chouteau L. S.: Cooper County, Missouri.

1865. *Producta Cooperensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 115.

Bed No. 1: Burlington, Iowa.

1870. *Producta Cooperensis?* Winchell, Proc. Am. Phil. Soc., vol. 11, p. 249.

Waverly Group: Sciotoville, Ohio.

Productus cora D'Orbigny.

1847. *Producta cora*. De Koninck, Monog. du Gen. Prod. et Chon., p. 50, pl. 4, figs. 4a, b; pl. 5, figs. 2a-d.
Carboniferous: Guernsey County, Flint Ridge, and Zanesville, Ohio; between New Harmony and Mount Vernon, Indiana; Leavenworth, Indiana; Windsor, Nova Scotia; Bolivia, etc., South America.
1848. *Productus Martini*. Christy, Letters on Geol., pl. 5, figs. 6, 8, 9.
Pineknayville, Illinois.
1852. *Productus semireticulatus*. Hall, Stansb. Exped. Gt. Salt Lake, p. 411, pl. 3, figs. 3, 5a, b.
Carboniferous: Near Fort Laramie; and Flat Rock Point and other places in the neighborhood of Great Salt Lake, Utah.
1852. *Productus cora*. Owen, Geol. Rep. Wis., Iowa, and Minn., Tab. 5, fig. 1.
Carboniferous: Missouri River, below mouth of Little Platte River.
1852. *Productus cora*. Roemer, Kreid. von Texas, p. 90.
Carboniferous: San Saba Valley, Texas.
1854. *Productus cora*. Marcy's Expl. Red River of Louis., p. 176.
Carboniferous: Washington and Crawford counties, Arkansas.
1855. *Productus cora*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 6.
Mountain L. S.: Chester, Rosiclare, and Warsaw, Illinois; near Richmond, Missouri; Carrsville, Kentucky.
1855. *Productus Prattenianus*. Norwood, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 17, pl. 1, figs. 10a-d.
Coal Measures: Crossing of Big Nemahaw River, about 85 miles northwest of St. Joseph, Missouri.
1855. *Productus Cora*. Salter, Belcher's "Last of the Arctic Voyages," p. 387, pl. 36, fig. 12.
Carboniferous: Top of Exmouth Island.
1858. *Productus cora*. Marcon, Geol. N. A., p. 45, pl. 6, figs. 4, 4a.
Mountain L. S.: Tigeras Canyon of San Antonio; Pecos Village; summit of Sierra de Sandia, New Mexico.
1859. *Productus Prattenianus*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 26.
Coal Measures: Indian Creek and Leavenworth, Kansas.
1863. *Productus Cora*. Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 174, pl. 9, figs. 22, 23.
Lower Carboniferous L. S.: Windsor, Horton Bluff, Shubenacadie, Gays River, Cape Breton, Pugwash, eastward of Cumberland, Lennox Passage, M'Kenzies Mill, at eastern extremity of Wallace Harbor, etc., Nova Scotia.
1866. *Productus Flemingi*. Geinitz, Carb. und Dyas. in Nebr., p. 52, tab. 4, figs. 1-4.
Bellevue, Plattsmouth, and Nebraska City, Nebraska.
1866. *Productus Koninckianus?* Geinitz, Carb. und Dyas. in Nebr., p. 53, tab. 4, fig. 4.
Nebraska City, Nebraska.
1868. *Productus cora*. Dawson, Acad. Geol., p. 297, figs. 98 a, b.
Carboniferous L. S.: Windsor, Horton Bluff, Shubenacadie, Gays River, Minudie, Cape Breton, Pugwash, east coast of Cumberland, Lennox Passage, M'Kenzies Mill, Wallace Harbor, etc., Nova Scotia.
1872. *Productus Prattenianus*. Meek, U. S. Geol. Surv. Nebr., p. 163, pl. 2, figs. 5a-c; pl. 5, fig. 13; pl. 8, figs. 10a, b.
Upper Coal Measures: Nebraska City, Bennett's Mill, Cedar Bluff, Plattsmouth, Bellevue, and Omaha, Nebraska; Kansas; Iowa; Illinois.
Lower Coal Measures: Illinois.

Productus cora D'Orbigny—Continued.

1874. *Productus Prattenianus* (= ? *P. laevicostus*). White, Prelim. Rep. Inv. Foss., p. 17.
Subcarboniferous: Below Ophir City, Utah.
1874. *Productus Cora* (?). Derby, Bull. Cornell Univ. (Sci.), vol. 1, No. 2, p. 49, pl. 2, fig. 17; pl. 6, fig. 17.
Coal Measures: Itaituba and Barreirinha, Brazil.
1876. *Productus Prattenianus*. White, Powell's Rep. Geol. Uinta Mts., p. 90.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1877. *Productus Prattenianus*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 72, pl. 7, fig. 7.
Carboniferous: Fossil Hill, White Pine District; Railroad Canyon, Diamond Mountains, Nevada.
1877. *Productus Prattenianus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 113, pl. 7, figs. 1a-c.
Carboniferous: Near Sante Fe and Zandia Mountains, New Mexico; Piloncillo range near Gavilan Peak, and at the confluence of White Mountain and Black rivers, Arizona; Egan range, 35 miles south of Egan Pass; Fossil Hill, White Pine County; Robert's Creek range, Lander County, and top of Grass Mountain, Ely range, 35 miles north of Pioche, Nevada; near Beckwith Spring, Cedar range; near top of Mount Nebo, and west face of Oquirrh range, Utah.
Subcarboniferous: Mountain Spring, Lincoln County, Nevada, and below Ophir City, Utah.
1884. *Productus Cora*. White, 13th Rep. Geol. Surv. Ind., p. 126, pl. 26, figs. 1-3.
Coal Measures: Fountain, Vermilion, Parke, Montgomery, Clay, Owen, Pike, Dubois, and Warrick counties, Indiana.
1886. *Productus Cora*. Heilprin, 2d Geol. Surv. Penn., Ann. Rep. 1885, p. 452; p. 440, figs. 1, 1a.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Productus Cora*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 268, figs. 1, 1a.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Productus Cora*. Herriek, Bull. Den. Univ., vol. 2, p. 47, pl. 2, figs. 26.
Coal Measures: Flint Ridge, Ohio.
1888. *Productus cora*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 227.
Lower Coal Measures: Des Moines, Iowa.
1892. *Productus* sp? compare *Prattenianus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 18, fig. 4.
Waverly S. S.: Newark, Ohio.
1894. *Productus cora*. Keyes, Mo. Geol. Surv., vol. 5, p. 47, pl. 37, figs. 2a-c.
Coal Measures: Calhoun and Kansas City, Missouri.
1897. *Productus cora*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 28.
Upper Coal Measures: Poteau Mountains, Indian Territory.
Archimedes L. S.: Independence County, Arkansas.
Marshall Shale: Independence and Stone counties, Arkansas.
Fayetteville Shale: Independence County, Arkansas.

Productus cora var. mogoyoni Marcon.

1858. *Productus cora* var. *mogoyoni*. Marcon, Geol. N. A., p. 45, pl. 6, fig. 5.
Mountain L. S.: Near the extinct volcano of San Francisco, New Mexico.

Productus coraformis Swallow.

1863. *Productus coraformis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 94.
Archimedes L. S.: Cooper County, Missouri.

Productus costatoides Swallow.

1858. *Productus costatoides*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 217.
Upper Coal Measures: Kansas.
1861. *Productus costatoides*. Newberry, Ives's Colo. Expl. Exped., p. 123.
Upper Carboniferous (Cherty L. S.): Banks of Colorado River.

Productus costatus Sowerby.

1847. *Productus costatus*. De Koninck, Monog. du Gen. Prod. et Chon., p. 92,
pl. 8, figs. 5a-c; pl. 10, figs. 5a-g; pl. 18, figs. 3a, b.
Carboniferous L. S.: St. Louis, Missouri.
1848. *Productus*. Christy, Letters on Geol., pl. 5, fig. 7.
Coal: Eden, Illinois.
1852. *Productus costatus?* Hall, Stansb. Exped. Gt. Salt Lake, p. 411, pl. 3, fig. 2.
Carboniferous: Missouri River.
1854. *Productus costatus*. Shumard, Marcy's Expl. Red River of Louis., p. 176,
pl. 1, fig. 2.
Carboniferous: Washington County, Arkansas.
1855. *Productus costatus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2),
vol. 3, p. 11.
Coal Measures: Caseyville and Belleville, Illinois; Charboniere, Missouri.
1855. *Productus Portlockianus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil.
(2), vol. 3, p. 15, pl. 1, figs. 9 a-c.
Coal Measures: Grayville, White County, Illinois; Charboniere, Missouri.
1858. *Productus costatus*. Marcou, Geol. N. A., p. 46, pl. 5, fig. 5.
Mountain L. S.: Cedar Creek, Sierra de Mogoyoni; Sierra of Arizona;
sources of Colorado Chiquito.
1858. *Productus costatus*, var. Hall, Geol. Iowa, vol. 1, pt. 2, p. 712, pl. 28, figs.
3a, b, 4a-c.
Coal Measures: Ohio; Illinois; Missouri; Iowa.
1861. *Productus costatus*. Newberry, Ives's Colo. Expl. Exped., p. 123.
Upper Carboniferous (Cherty L. S.): Banks of Colorado River.
Coal Measures: Nebraska.
1872. *Productus costatus??* Meek, U. S. Geol. Surv. Nebr., p. 159, pl. 6, figs. 6a, b.
Upper Coal Measures: Nebraska City, 2½ miles west of Nebraska City,
Wyoming, Bennett's Mill, Rock Bluff, Cedar Bluff, Plattsmouth, Belle-
vue, and Omaha, Nebraska.
Coal Measures: Illinois; Iowa; Missouri; Pennsylvania.
1876. *Productus costatus?* White, Powell's Rep. Geol. Uinta Mts., p. 89.
Lower Aubrey Group: Near Echo Park, Utah.
1876. *Productus costatus*, var. White, Powell's Rep. Geol. Uinta Mts., p. 89.
Lower Aubrey Group: Near Echo Park, Utah.
1877. *Productus costatus??* Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 69, pl. 7,
figs. 4, 4b.
Carboniferous: Railroad Canyon, Diamond Mountains; Fossil Hill, White
Pine Mountains, and Moleen Peak, Nevada.
1877. *Productus costatus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, pt. 1,
p. 109, pl. 8, figs. 2a-d.
Carboniferous: Camp Cottonwood, Old Mormon road, Lincoln County;
top of Grass Mountains, Ely range, 35 miles north of Pioche; and at
Silver Peak, Nevada; head of Partridge Creek, Yavapai County; Salt
River; and head of Big Dry Fork, Arizona; Kanab Canyon, Arizona;
Rock Canyon, Wahsatch range, near Provo; Lake range, Fairfield road,
and first camp south of Saint George, Utah; near Bear Spring; Camp
Wingate, and in the Zuni Mountains, between Camp Wingate and Nutria
Spring, New Mexico.
1878. *Productus costatus*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 631.
Carboniferous: Feilden Isthmus, latitude 82° 43'.

Productus costatus Sowerby—Continued.

1881. *Productus costatus*. White, 2d Ann. Rep. Dep. Stat. and Geol. Ind., p. 516, pl. 8, figs. 7, 8.
Coal Measures: Silver Mine; Vermilion County, Indiana.
1883. *Productus costatus*. Hall, Rep. N. Y. State Geol. for 1882, pl. (19) 50, figs. 8–13.
Coal Measures: Iowa.
1884. *Productus costatus*. White, 13th Rep. Geol. Surv. Ind., p. 124, pl. 24, figs. 4–6; pl. 25, figs. 3–5.
Coal Measures: Indiana.
1892. *Productus costatus*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 22, fig. 1.
Coal Measures: Winterset, Iowa.
1892. *Productus costatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 19, figs. 8–13.
Coal Measures: Winterset, Iowa.
1894. *Productus costatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 51, pl. 36, figs. 1a–c.
Upper Coal Measures: Kansas City, Missouri.

Productus curtirostris Winchell.

1865. *Producta curtirostra*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 114.
Yellow Sandstone: Burlington, Iowa.

Productus delawari Marcon.

1858. *Productus delawarii*. Marcon, Geol. N. A., p. 45, pl. 5, fig. 8.
Mountain L. S.: Western foot of Delaware Mountain, Texas.

Productus depressus Swallow.

1863. *Productus depressus*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 93.
Keokuk L. S.: Fenton, St. Louis County, Missouri.

Productus dolorosus Winchell.

1865. *Producta dolorosa*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 114.
Marshall Group: Weymouth, Medina County, Ohio, 60 feet below conglomerate.

Productus duplicostatus Winchell.

1865. *Producta duplicosta*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 113.
Marshall Group: Battle Creek, Michigan; Licking County, Ohio.
1888. *Productus duplicostatus*. Herrick, Bull. Den. Univ., vol. 4, p. 21, pl. 11, figs. 26, 29.
Waverly Group: Knox and Licking counties, Ohio.

Productus elegans. See Productus cestriensis.**Productus fasciculatus McChesney.**

1860. *Productus fasciculatus*. McChesney, Desc. New Pal. Foss., p. 38.
Kaskaskia L. S.: Fountain Bluff, Kaskaskia, and Chester, Illinois; Leavenworth, Indiana.

Productus fentonensis Swallow.

1863. *Productus Fentonensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 93.
Fenton, St. Louis County, Missouri.

Productus fimbriatus Sowerby.

1855. *Productus fimbriatus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 19.
Mountain L. S.: Near Alton, Illinois.
Coal Measures: Big Creek, Posey County, Indiana.
1878. *Productus fimbriatus*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 630.
Carboniferous: Feilden Isthmus, latitude 82° 43'.

Productus flemingi. See Productus longispinus and Productus cora.

Productus flemingi var. *burlingtonensis*. See *Productus burlingtonensis*.

Productus flexistria McCoy.

1855. *Productus flexistria*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 6.

Mountain L. S.: Chester, Kaskaskia, and Fountain Bluff, Illinois; near Stephenport, Kentucky.

Productus giganteus Martin.

1880. *Productus giganteus*. White, Cont. to Pal. No. 6, p. 132, pl. 36, figs. 1a-c.

Carboniferous: Valley of the McCloud River, Shasta County, California.

1881. *Productus giganteus*. White, Proc. U. S. Nat. Mus., vol. 3, p. 46.

Carboniferous: Valley of McCloud River, Shasta County, California.

Productus gracilis Winchell.

1865. *Producta gracilis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 112.

Marshall Group: Valley Forge, 1½ miles below Cuyahoga Falls, Ohio.

1870. *Producta gracilis?* Winchell, Proc. Am. Phil. Soc., vol. 11, p. 250.

Waverly Group: Sciotoville, Ohio.

1888. *Productus gracilis*. Herrick, Bull. Den. Univ., vol. 3, p. 34, pl. 7, fig. 20.

Waverly Group: Licking County, Ohio.

Productus gradatus Swallow.

1863. *Productus gradatus*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 93.

Keokuk, L. S.: Keokuk, Iowa; Lewis and St. Louis counties, Missouri.

Productus granulosus Phillips.

1855. *Productus Granulosus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 21.

Mountain L. S.: Nauvoo, Illinois; Carrsville, Kentucky.

Productus hepar Morton.

1836. *Productus hepar*. Morton, Am. Jour. Sci. (1), vol. 29, p. 149, pl. 26, fig. 39.

Coal Measures: Ohio Valley.

Productus hildrethianus Norwood and Pratten.

1855. *Productus Hildrethianus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 18, pl. 1, figs. 11a-c.

Coal Measures: Charboniere, Missouri.

Productus horridus. See *Productus longispinus*.

Productus incurvus Say.

1823. *Productus incurvus*. Say, Long's Exped. to Rocky Mts., vol. 1, p. 106 (foot-note).

From Fort Osage.

1897. *Productus incurvus*. Harris, Bull. Am. Pal., vol. 1, p. 379 (109).

Productus indianensis Hall.

1856. *Productus Indianensis*. Hall, Trans. Albany Inst., vol. 4, p. 13.

St. Louis L. S.: Spergen Hill, Indiana.

1882. *Productus Indianensis*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 47, pl. 6, figs. 6, 7.

St. Louis Group: Spergen Hill, Indiana.

1883. *Productus Indianensis*. Hall, 12th Rep. Geol. Surv. Ind., p. 326, pl. 29, figs. 6, 7.

St. Louis Group: Spergen Hill, Indiana.

Productus inflatus McChesney.

1860. *Productus inflatus*. McChesney, Desc. New Pal. Foss., p. 40.

Carboniferous L. S.: Leavenworth, Indiana.

Productus inflatus McChesney—Continued.

1865. *Productus inflatus*. McChesney, Ill. New Spec. Foss., pl. 6, figs. 1a-c.
 1868. *Productus inflatus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 27, pl. 6, figs. 1a-c.
 Carboniferous L. S.: Leavenworth, Indiana.

Productus ivesi Newberry.

1861. *Productus Ivesi*. Newberry, Ives's Colo. Expl. Exped., p. 122, pl. 2, figs. 1-8.
 Middle Carboniferous L. S.: Banks of Colorado River, near mouth of Diamond River.
 1877. *Productus Ivesi?* Meek, U. S. Geol. Expl., 40 Par., vol. 4, p. 67, pl. 7, figs. 6-6b.
 Carboniferous: Fossil Hill, White Pine Mountains; Railroad Canyon, Diamond Mountains; west of San Francisco Mountain, etc., Nevada.

Productus koninckianus. See *Productus cora*.**Productus lachrymosus** var. *stigmara* Herrick. See *Productus rari-costatus*.**Productus lævicostus** White.

- *1860. *Productus lævicostus*. White, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 230.
 Burlington L. S.: Burlington, Iowa.
 1877. *Productus lævicostus?* Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 266, pl. 5, figs. 7, 8.
 Lower Carboniferous L. S.: North of Snowstorm Hill, Dry Canyon, Oquirrh Mountains, Utah.
 1894. *Productus lævicostus*. Keyes, Mo. Geol. Surv., vol. 5, p. 41, pl. 38, fig. 1.
 Kinderhook Group: Louisiana, Missouri.
 Burlington Group: Louisiana, Missouri.

Productus lasallensis Worthen.

1873. *Productus Lasallensis*. Worthen, Geol. Surv. Ill., vol. 5, p. 569, pl. 25, fig. 9.
 Upper Coal Measures: Lasalle, Illinois.
 1892. *Productus (Marginifera) Lasallensis*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 22, fig. 15.
 Upper Carboniferous: Lasalle, Illinois.
 1892. *Productus (Marginifera) Lasallensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17A, fig. 13.
 Upper Carboniferous: Lasalle, Illinois.

Productus latissimus Sowerby.

1823. *Productus latissimus*. Sowerby, Min. Conch., vol. 4, p. 32, tab. 330.
 1876. *Productus Latissimus*. Meek, Bull. U. S. G. and G. Surv. Terr., vol. 2, p. 354, pl. 1, fig. 1.
 Carboniferous: Katlahwoke Creek, Rocky Mountains.

Productus leplayi de Verneuil.

1859. *Productus Leplayi* (?) Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 390.
 White Permian L. S.: Guadalupe Mountains.

Productus leuchtenbergensis De Koninck.

1855. *Productus Leuchtenbergensis*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 19.
 Mountain L. S.: Mason's Landing, Jersey County, Illinois.

Productus lineolatus Say.

1823. *Productus lineolatus*. Say, Long's Exped. to Rocky Mts., vol. 1, p. 151 (footnote).
 Missouri River, 5 miles below Council Bluffs.
 1897. *Productus lineolatus*. Harris, Bull. Am. Pal., vol. 1, p. 384 (114).

***Productus longispinus* Sowerby.**

1847. *Productus flemingii*. De Koninck, Monog. du Gen. Prod. et Chon., p. 95, pl. 10, figs. 2a-l; fig. 3u. (Not *P. flemingii* Sowerby, 1812.)
Carboniferous: Louisville, Kentucky; Bagdad, Flint Ridge, Zanesville, and Guernsey, Ohio; Sparta, Illinois; Windsor, Nova Scotia; Bank of Missouri River; Bolivia, South America.
1852. *Productus Flemingii*. Owen, Geol. Rep. Wis., Iowa, and Minn., tab. 5, fig. 2.
Carboniferous: Missouri River, near mouth of Keg Creek.
1852. *Productus flemingii*. Roemer, Kreid. von Texas, p. 89, taf. 11, figs. 8a, b.
Carboniferous: San Saba Valley, Texas.
1855. *Productus Flemingii*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 11.
Mountain L. S.: Hardin County, Illinois; Leavenworth, Indiana; Burlington, Iowa.
1855. *Productus splendens*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 11, pl. 1, figs. 5a-d.
Coal Measures: Galatia, Illinois; 6 miles west of Richmond, Missouri; near Big Creek, Posey County, Indiana.
1855. *Productus splendens*. Schiel, Pac. R. R. Rep., vol. 2, p. 108, pl. 1, fig. 3.
Carboniferous L. S.: 6 miles west of Westport.
1858. *Productus flemingii*. Marcou, Geol. N. A., p. 47, pl. 6, fig. 7.
Mountain L. S.: Tigras in the canyon of San Antonio, and near the summit of Sierra de Sandia; Pecos Village; Ohio, Indiana, and Arkansas.
1859. *Productus splendens* (?) Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 25.
Upper Coal Measures: Manhattan and Fort Riley, Kansas.
1861. *Productus splendens*? Newberry, Ives's Colo. Expl. Exped., p. 124.
Coal Measures L. S.: Santa Fe Road, 10 miles west of Burlingame, Kansas.
1866. *Productus horridus*. Geinitz, Carb. und Dyas in Nebr., p. 55, tab. 4, fig. 7.
(Not *P. horridus* Sowerby, 1822.)
Bennett's Mill, Nebraska City, Nebraska.
1866. *Productus Orbigyanus*. Geinitz, Carb. und Dyas in Nebr., p. 56, tab. 4, figs. 8-11.
Bellevue, Plattsmouth, and Nebraska City, Nebraska.
1877. *Productus longispinus*? Meek, U. S. Geol. Surv. Nebr., p. 161, pl. 6, fig. 7; pl. 8, figs. 6a-c.
Upper Coal Measures: Nebraska City, Wyoming; Bennett's Mill, Rock Bluff, Cedar Bluff, Plattsmouth, Bellevue, and Omaha, Nebraska.
Upper, Middle, and Lower Coal Measures: Iowa; Illinois; Kansas; Missouri.
1873. *Productus Longispinus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 569, pl. 25, fig. 10.
Upper and Lower Coal Measures: Illinois.
1876. *Productus longispinus*? White, Powell's Rep. Geol. Uinta Mts., p. 89.
Lower Aubrey Group: Near Echo Park, and at confluence of Grand and Green rivers, Utah.
1877. *Productus longispinus*. Meek, U. S. Geol. Expl., 40 Par., vol. 4, p. 78, pl. 8, figs. 4, 4a.
Carboniferous L. S.: Fossil Hill, White Pine District, Nevada.
1877. *Productus longispinus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 118, pl. 8, figs. 5a-d.
Carboniferous: East of Minersville and at Meadow Creek, south of Fillmore, Utah; Camp Cottonwood, old Mormon road, Lincoln County, Nevada; near Santa Fe, New Mexico.
1883. *Productus longispinus*. Hall, Rep. N. Y. State Geol. for 1882, pl. (19) 50, figs. 1-4.
Coal Measures: Winterset, Iowa; Lasalle, Illinois.

Productus longispinus Sowerby—Continued.

1884. *Productus longispinus*. White, 13th Rep. Geol. Surv. Ind., p. 127, pl. 24, figs. 10, 11.
Coal Measures: Fountain, Parke, Vermilion, Vigo, Sullivan, Knox, Pike, Warrick, Spencer, Posey, Gibson, and Vanderburg counties, Indiana.
1887. *Productus longispinus*. Herrick, Bull. Den. Univ., vol. 2, p. 48, pl. 2, figs. 25, 27, 28.
Coal Measures: Flint Ridge, Ohio.
1892. *Productus (Marginifera) splendens*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 22, figs. 13, 14.
Upper Coal Measures: Winterset, Iowa.
Coal Measures: Lasalle, Illinois.
1892. *Productus (Marginifera) splendens*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 19, figs. 1-4.
Upper Coal Measures: Winterset, Iowa; Lasalle, Illinois.
1894. *Productus longispinus*. Keyes, Mo. Geol. Surv., vol. 5, p. 45, pl. 37, figs. 4a, b, Upper Coal Measures: Kansas City, Missouri.
1897. *Productus splendens*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 29.
Upper Coal Measures: Sebastian County, Arkansas, and Poteau Mountain, Indian Territory.

Productus magnicostatus Swallow.

1860. *Productus magnicostatus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 641.
Coal Measures: Johnson County, Missouri.

Productus magnus Meek and Worthen.

1861. *Productus magnus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 142.
Keokuk L. S.: Monroe County, Illinois; Ste. Genevieve County, Missouri.
1868. *Productus magnus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 528, pl. 20, figs. 7a-c.
Keokuk Group: Monroe County, Illinois; Ste. Genevieve County, Missouri.
1892. *Productus magnus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17A, fig. 15.
Keokuk Group: Crawfordsville, Indiana.
1894. *Productus magnus*. Keyes, Mo. Geol. Surv., vol. 5, p. 41.
Keokuk L. S.: Ste. Genevieve and St. Francisville, Missouri.

Productus margaritaceus Phillips.

1855. *Productus margaritaceus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 6.
Twelve miles northwest of Richmond, Missouri.

Productus marginicinctus Prout.

1857. *Productus marginicinctus*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 43, pl. 2, figs. 1-16.
St. Louis L. S.: St. Louis, Missouri.
1858. *Productus marginicinctus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 674, pl. 24, figs. 3a-c.
St. Louis L. S.: St. Louis, Missouri; Milan, Illinois.
1894. *Productus marginicinctus*. Keyes, Mo. Geol. Surv., vol. 5, p. 43.
St. Louis L. S.: St. Louis, Missouri; Keokuk, Iowa.

Productus Martini Sowerby.

1863. *Producta Martini*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 4.
Yellow S. S. and Burlington L. S.: Burlington, Iowa.
Also see *Productus cora*.

Productus mesialis Hall.

1858. *Productus mesialis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 636, pl. 19, figs. 2a-c.
Keokuk L. S.: Nauvoo, Illinois.

Productus mesialis Hall—Continued.

1883. *Productus mesialis*. Hall, Rep. N. Y. State Geol. for 1882, pl. (18) 49, figs. 9, 10.
Keokuk L. S.: Nauvoo, Illinois.
1892. *Productus mesialis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 18, figs. 9, 10.
Keokuk Group: Nauvoo, Illinois.

Productus mesolobus Phillips.

1878. *Productus mesolobus*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 630.
Carboniferous: Feilden Isthmus, latitude 82° 43'.

Productus mexicanus Shumard.

1868. *Productus Mexicanus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 291.
White Permian L. S.: Guadalupe Mountains.
1869. *Productus Mexicanus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 389.
White Permian L. S.: Guadalupe Mountains.
1877. *Productus Mexicanus?* White, U. S. Geog. Surv., W. 100 Merid., vol. 4, p. 120, pl. 8, figs. 6a-c.
Carboniferous: Camp Cottonwood, old Mormon road, Lincoln County, Nevada; near Salt Lake, New Mexico.

Productus morbillianus Winchell.

1865. *Producta morbilliana*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 113.
Base of Burlington L. S.: Burlington, Iowa.
1870. *Producta morbilliana*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 250.
Waverly Group; Sciotoville, Ohio.

Productus multistriatus Meek.

1860. *Productus multistriatus*. Meek, Proc. Acad. Nat. Sci. Phil., p. 309.
Upper Carboniferous?: East side of Long Valley, latitude, 39° 57'; longitude, 115° 10'.
1876. *Productus multistriatus*. Meek, Simpson's Expl. Gt. Basin, Utah, p. 350, pl. 1, figs. 8a, b.
Yellow L. S. (Upper Carboniferous?): Long Valley.
1876. *Productus multistriatus*. White, Powell's Rep. Geol. Uinta Mts., p. 90.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1877. *Productus multistriatus*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 76, pl. 8, figs. 3-3c.
Carboniferous L. S.: Near center of the eastern margin of Nevada; Ruby Group and Mahogany Peak, Egan Range.

Productus muricatus Norwood and Pratten.

1855. *Productus muricatus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 14, pl. 1, figs. 8a-e.
Coal Measures: Fish-hook Creek, Pike County, Illinois; 6 miles northwest of Richmond, Missouri.
1857. *Productus muricatus*. Cox, Geol. Rep. Ky., vol. 3, p. 573, pl. 9, fig. 6.
Coal Measures: Union County, Illinois; Lewisport, Hancock County, Kentucky; Gallatin County, Illinois.
1876. *Productus muricatus*. White, Powell's Rep. Geol. Uinta Mts., p. 90.
Lower Aubrey Group: Near Echo Park, Utah.
1877. *Productus muricatus*. White, U. S. Geol. Surv. W. 100 Merid., vol. 4, p. 120, pl. 8, figs. 4a-c.
Carboniferous: Rock Creek, Lake County, Colorado.
1887. *Productus muricatus*. Herrick, Bull. Den. Univ., vol. 2, p. 49.
Coal Measures: Flint Ridge, Ohio.
1888. *Productus muricatus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 228.
Lower Coal Measures: Des Moines, Iowa.

Productus nanus Meek and Worthen.

1860. *Productus nanus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 450.
Lower Coal Measures: Jefferson County, Iowa.
1866. *Productus nanus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 320, pl. 26,
figs. 4a-d.
Lower Coal Measures: Jefferson County, Iowa.
1888. *Productus nanus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 227.
Lower Coal Measures: Des Moines, Iowa.

Productus nebrascensis Owen.

1852. *Productus nebrascensis*. Owen, Geol. Rep. Wis., Iowa, and Minn., p. 594,
tab. 5, fig. 3.
Carboniferous L. S.: Bellevue, Missouri River, Nebraska.
1855. *Productus Rogersi*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2),
vol. 3, p. 9, pl. 1, figs. 3a-c.
Coal Measures: Near Huntville, Missouri.
1855. *Productus Nebrascensis*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil.
(2), vol. 3, p. 21.
Coal Measures; Crossing of Big Nemaha, Nebraska Territory.
1856. *Productus rogersi*. Hall, Pac. R. R. Rep., vol. 3, p. 104, pl. 2, figs. 14, 15.
Carboniferous L. S.: Pecos Village, New Mexico.
1859. *Productus Rogersi*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 26.
Upper Coal Measures: Kansas River Valley, below mouth of Blue River,
Kansas.
1860. *Productus asperus*. McChesney, Desc. New Pal. Foss., p. 34.
Coal Measures: Lasalle and Springfield, Illinois.
1861. *Productus Rogersi*. Newberry, Ives's Colo. Expl. Exped., p. 121.
Coal Measures: Pecos Village and Kansas.
1865. *Productus asper*. McChesney, Ill. New Spec. Foss., pl. 1, figs. 7a-b.
1866. *Strophalosia horrescens*. Geinitz, Carb. und Dyas in Nebr., p. 49.
Bellevue, Plattsmouth, Nebraska City, and Bennett's Mill, Nebraska.
1868. *Productus nebrascensis*. McChesney, Trans. Chicago Acad. Sci., vol. 1,
p. 24, pl. 1, figs. 7a, b.
Coal Measures: Lasalle and Springfield, Illinois.
1872. *Productus Nebrascensis*. Meek, U. S. Geol. Surv. Nebr., p. 165, pl. 2, fig. 2;
pl. 4, fig. 6; pl. 5, figs. 11a-c.
Upper Coal Measures: Nebraska City, Wyoming, Bennett's Mill, Rock
Bluff, Plattsmouth, Bellevue, and Omaha, Nebraska.
Coal Measures: Illinois; Missouri; Iowa; Kansas; New Mexico.
1873. *Productus Nebrascensis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 569,
pl. 25, fig. 8.
Coal Measures: Sangamon and Lasalle counties, Illinois.
1876. *Productus Nebrascensis*. White, Powell's Rep. Geol. Units Mts., p. 90.
Lower Aubrey Group: Confluence of Grand and Green rivers.
1877. *Productus Nebrascensis*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4,
p. 116, pl. 8, figs. 3a-d.
Carboniferous: Camp Apache and Carrizo Creek, Maricopa County, Ari-
zona; Rubyville, Schell Creek range, and top of Grass Mountain, Ely
range, Nevada; Meadow Creek, south of Fillmore, Utah.
1883. *Productus asperus*. Hall, Rep. N. Y. State Geol. for 1882, pl. (19) 50, figs. 5-7.
Coal Measures: Lasalle, Illinois.
1884. *Productus Nebrascensis*. White, 13th Rep. Geol. Surv. Ind., p. 122, pl. 24,
figs. 7-9.
Coal Measures: Fountain, Vermilion, Parke, and Vigo counties, Indiana.
1886. *Productus Nebrascensis*? Heilprin, 2d Geol. Surv. Penn., Ann. Rep. for 1885,
p. 453, fig. 4c; p. 440, figs. 4-4b.
- Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.

Productus nebraskensis Owen—Continued.

1886. *Productus Nebrascensis*? Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 268, figs. 4, 4b.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Productus Nebrascensis*. Herrick, Bull. Den. Univ., vol. 2, p. 49, pl. 2, fig. 30.
Coal Measures: Flint Ridge, Ohio.
1888. *Productus Nebrascensis* (?) Herrick, Bull. Den. Univ., vol. 3, p. 31, pl. 1, fig. 24; pl. 3, figs. 25 (†), 25a.
Waverly Group: Licking County, Ohio.
1892. *Productus Nebrascensis*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 22, fig. 7.
Coal Measures: Lasalle, Illinois.
1892. *Productus Nebrascensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 19, figs. 5-7.
Coal Measures: Lasalle, Illinois.
1894. *Productus nebrascensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 48, pl. 37, figs. 3a-c.
Upper Coal Measures: Kansas City, Missouri.

Productus nevadensis Meek.

1877. *Productus Nevadensis*. Meek, U. S. Geol. Surv. 40 Par., vol. 4, p. 64, pl. 8, figs. 2-2e.
Carboniferous: West side of Buell Valley; Summit Spring Pass; Ruby Valley; White Pine Mountains, Nevada.

Productus newberryi Hall.

1857. *Productus newberryi*. Hall, 10th Rep. N. Y. State Cab. Nat. Hist., p. 180.
Chemung S. S.: Medina County, Ohio.
1883. *Productella Newberryi*. Hall, Rep. N. Y. State Geol. for 1882, pl. (18) 49, figs. 1-3.
Waverly Group: Medina and Newark, Ohio.
1888. *Productus newberryi*. Herrick, Bull. Den. Univ., vol. 4, p. 20, pl. 10, figs. 24, 35.
Waverly Group: Bagdad, Weymouth, Medina, Lodi, Burbank, and Cuyahoga Falls, Ohio.
1892. *Productus Newberryi*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 22, fig. 8.
Waverly S. S.: Medina, Ohio.
1892. *Productus Newberryi*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 18, figs. 1-3.
Waverly S. S.: Medina and Newark, Ohio.

Productus newberryi var. *annosus* Herrick.

1888. *Productus (newberryi* var. ?) *annosus*. Herrick, Bull. Den. Univ., vol. 4, p. 20, pl. 3, fig. 17.
Waverly Group: Alexandria, Ohio.
1895. *Productus newberryi* var. *annosus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 13.
Cuyahoga Shale: Licking County, Ohio.

Productus nodocostatus Herrick.

1888. *Productus nodocostatus*. Herrick, Bull. Den. Univ., vol. 4, p. 23, pl. 3, fig. 10.
Waverly Group: Rushville, Ohio.

Productus nodosus Newberry.

1861. *Productus nodosus*. Newberry, Ives's Colo. Expl. Exped., p. 124, pl. 1, figs. 7-7b.
Carboniferous L. S.: Santa Fe, New Mexico.
1876. *Productus nodosus*. Newberry, U. S. Expl. Exped. from Santa Fe to Grand and Green rivers, p. 140, pl. 3, figs. 3-3d.
Upper Coal Measures: New Mexico and Utah.

Productus norwoodi Swallow.

1858. *Productus (Strophalosia?) Norwoodii*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 182.
Lower Permian: Valley of Cottonwood, Kansas.
1859. *Productus Norwoodii*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 389.
Dark Permian L. S.: Guadalupe Mountains.
1859. *Productus Norwoodii*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 25.
Upper Coal Measures: Fort Riley and Leavenworth, Kansas.

Productus occidentalis Newberry.

1861. *Productus occidentalis*. Newberry, Ives's Colo. Expl. Exped., p. 122, pl. 2, figs. 9, 10.
Upper Carboniferous (Cherty L. S.): Banks of Cascade River, near junction of Great and Little Colorado.

Productus ovatus Hall.

1858. *Productus ovatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 674, pl. 24, fig. 1.
St. Louis L. S.: Ottumwa and Keosauqua, Iowa; St. Louis, Missouri.
1883. *Productus ovatus*. Hall, Rep. N. Y. State Geol. for 1882, pl. (18) 49, fig. 19.
Keokuk L. S.: New Providence, Indiana.
1892. *Productus ovatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 18, fig. 19.
Keokuk L. S.: New Providence, Indiana.
1894. *Productus ovatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 44.
St. Louis L. S.: St. Louis, Missouri.

Productus parvulus Winchell.

1863. *Producta parvula*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 4.
Yellow S. S.: Burlington, Iowa.

Productus parvus Meek and Worthen.

1860. *Productus parvus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 450.
Chester L. S.: Chester, Illinois.
1866. *Productus parvus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 297, pl. 23, figs. 4a-e.
Chester Group: Chester, Illinois.
1874. *Productus Parvus*. White, Prelim. Rep. Inv. Foss., p. 17.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
1877. *Productus parvus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 83, pl. 5, figs. 6a, b.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
1888. *Productus parvus*. Herrick, Bull. Den. Univ., vol. 4, pl. 11, fig. 11.
Chester L. S.: Ohio.

Productus pectenoides Say.

1823. *Productus pectenoides*. Say, Long's Exped. to Rocky Mts., vol. 1, p. 150.
(footnote.)
Missouri River, 5 miles below Council Bluffs.
1897. *Productus pectenoides*. Harris, Bull. Am. Pal., vol. 1, p. 384 (114).

Productus pertenuis Meek.

1866. *Productus Cancrini*. Geinitz, Carb. und Dyas in Nebr., p. 54, tab. 4, fig. 6.
(Not *P. cancrini* deKon., 1843.)
Nebraska City, Nebraska.
1872. *Productus pertenuis*. Meek, U. S. Geol. Surv. Nebr., p. 164, pl. 1, figs. 14a-c; pl. 8, figs. 9a-d.
Upper Coal Measures: Nebraska City and Brownville, Nebraska; Grasshopper Creek, 12 miles west of Leavenworth and at Atchison, Kansas.

Productus phillipsi Norwood and Pratten.

1855. *Productus Phillipsi*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 8, pl. 1, figs. 2a-c.
Mountain L. S.: "Big Canyon" of Humboldt River, Utah Territory.

Productus pileiformis McChesney.

1859. *Productus pileiformis*. McChesney, Desc. New Pal. Foss., p. 40.
Kaskaskia L. S.: Chester, Illinois.
1891. *Productus pileiformis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 582, pl. 13, figs. 13, 14.
Maxville L. S.: Ohio.
1895. *Productus pileiformis*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 470, pl. 9, figs. 13, 14.
Maxville L. S.: Ohio.

Productus pileolus Shumard.

1858. *Productus pileolus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 291.
White Permian L. S.: Guadalupe Mountains.
1859. *Productus pileolus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 389.
White Permian L. S.: Guadalupe Mountains.

Productus pocillum Morton.

1836. *Productus pocillum*. Morton, Am. Jour. Sci. (1), vol. 29, p. 150, pl. 2, fig. 2.
Coal Measures: Ohio Valley.

Productus popei Shumard.

1858. *Productus Popei*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 290.
Permian: New Mexico and Texas.
1859. *Productus Popei*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 389, pl. 11, fig. 8.
White Permian L. S.: Guadalupe Mountains.

Productus portlockianus. See *Productus costatus*.**Productus prattenianus**. See *Productus cora*.**Productus punctatus** Martin.

1836. *Productus punctatus?* Morton, Am. Jour. Sci. (1), vol. 29, p. 153, pl. 26, fig. 38.
Coal Measures: Ohio Valley.
1838. *Producta semipunctata*. Shepard, Am. Jour. Sci. (1), vol. 34, p. 153, fig. 9.
Limestone: Peru, Illinois.
1847. *Productus punctatus*. DeKoninck, Monog. du Gen. Prod. et Chon., p. 123, pl. 12, figs. 2a-k.
Carboniferous: Zanesville, Ohio; Eddyville and Louisville, Kentucky.
1854. *Productus punctatus*. Shumard, Marcy's Expl. Red River of Louis., p. 175, pl. 1, fig. 5; pl. 2, fig. 1.
Carboniferous: Washington County, Arkansas.
1855. *Productus punctatus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 19.
Mountain L. S.: Warsaw, Illinois.
Coal Measures: 12 miles northwest of Richmond, Missouri; near Caseyville, Illinois.
1858. *Productus punctatus*. Marcon, Geol. N. A., p. 48, pl. 6, fig. 2.
Mountain L. S.: Tigras, Pecos Village, and in the Sierra de Mogoyon, New Mexico.
1860. *Productus tubulospinus*. McChesney, Desc. New Pal. Foss., p. 37.
Coal Measures: Western States.
1865. *Productus tubulospinus*. McChesney, Ill. New Spec. Foss., pl. 1, figs. 10, 11.
1868. *Productus punctatus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 27, pl. 1, figs. 10, 11.
Upper and Lower Coal Measures: Throughout the Western States.

Productus punctatus Martin—Continued.

1872. *Productus punctatus*. Meek, U. S. Geol. Surv. Nebr., p. 169, pl. 2, fig. 6, pl. 4, fig. 5.
Upper Coal Measures: Nebraska City, Bennett's Mill, Wyoming, Rock Bluff, Plattsmouth and Bellevue, Nebraska; Illinois; Iowa; Missouri.
Lower Coal Measures: Missouri; Iowa; Illinois.
Lower Carboniferous: Missouri; Iowa; Illinois.
1873. *Productus Punctatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 569, pl. 25, fig. 13.
Upper and Lower Coal Measures: Illinois.
1876. *Productus punctatus*. White, Powell's Rep. Geol. Uinta Mts., p. 89.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1877. *Productus punctatus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 114, pl. 7, figs. 2a-c.
Carboniferous: At and near top of Grass Mountain, Ely Range, 35 miles north of Pioche, Nevada.
1878. *Productus* sp. allied to *P. punctatus*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 630.
Carboniferous: Feilden Isthmus, latitude 82° 43'.
1882. *Productus punctatus*. White, 11th Rep. Geol. Surv. Ind., p. 373, pl. 42, figs. 1-3.
Coal Measures: Newport, Indiana.
1883. *Productus punctatus*. Hall, Rep. N. Y. State Geol. for 1882, pl. (19) 50, figs. 14-16.
1883. *Productus Rogersi*. Hall, Rep. N. Y. State Geol. for 1882, pl. (19) 50, figs. 17, 18.
Coal Measures.
1884. *Productus punctatus*. White, 13th Rep. Geol. Surv. Ind., p. 124, pl. 27, figs. 1-3.
Coal Measures: Vermilion, Vigo, Sullivan, Vanderberg, Dubois, Warrick, and Pike counties, Indiana.
1887. *Productus punctatus*. Herrick, Bull. Den. Univ., vol. 2, p. 48, pl. 2, fig. 29.
Coal Measures: Flint Ridge, Ohio.
1892. *Productus punctatus*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 22, figs. 9, 10.
Coal Measures: Mississippi Valley.
1892. *Productus punctatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17A, fig. 21; pl. 19, figs. 14-17.
Upper Coal Measures: Near Kansas City, Missouri; Missouri.
1894. *Productus punctatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 51, pl. 37, figs. 1a-c.
Upper Coal Measures: Kansas City, Missouri.
1897. *Productus punctatus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 29, pl. 22, fig. 7.
Lower Coal Measures: Conway County, Arkansas.

Productus pustulosus Phillips.

1858. *Productus pustulosus*. Marcou, Geol. N. A., p. 48, pl. 6, fig. 1.
Mountain L. S.: Tigras, New Mexico.
1859. *Productus pustulosus* (?). Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 26.
Coal Measures: Leavenworth, Kansas.

Productus pyxidatus. See Productella pyxidata.**Productus pyxidiformis DeKoninck.**

1858. *Productus pyxidiformis*. Marcou, Geol. N. A., p. 48, pl. 6, figs. 3, 3a.
Mountain L. S.: Tigras, New Mexico.

Productus raricostatus Herrick.

1888. *Productus (Productella) lachrymosus* var. *stigmarius*. Herrick, Bull. Den. Univ., vol. 3, p. 34, pl. 3, fig. 28. (Not. *P. lachrymosus* var. *stigmata* Hall, 1867.)

Waverly Group: Licking County, Ohio.

1888. *Productus raricostatus*. Herrick, Bull. Den. Univ., vol. 4, p. 19, pl. 3, fig. 19.

Waverly Group: Moot's Run, Licking County, Ohio.

1895. *Productus raricostatus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 9.

Cuyahoga Shale: Moot's Run, Licking County, Ohio.

Productus rogersi. See *Productus punctatus* and *Productus nebrascensis*.**Productus rushvillensis** Herrick.

1888. *Productus rushvillensis*. Herrick, Bull. Den. Univ., vol. 4, p. 22, pl. 3, fig. 15.

Waverly Group: Rushville, Newark, and Loudonville, Ohio.

1895. *Productus rushvillensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 15.

One hundred feet above Conglomerate II (Waverly Group): Rushville, Newark, and Loudonville, Ohio.

Productus scabriculus Martin.

1855. *Productus scabriculus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 17.

Coal Measures.

1858. *Productus scabriculus*. Marcou, Geol. N. A., p. 47, pl. 5, figs. 6, 6a.

Mountain L. S.: Pecos Village and on summit of Sierra de Sandia.

1861. *Productus scabriculus*. Newberry, Ives's Colo. Expl. Exped., p. 125.

Upper Carboniferous: Near Santa Fé, New Mexico.

Productus scitulus Meek and Worthen.

1860. *Productus scitulus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 451.

St. Louis L. S.: Alton, Illinois.

1866. *Productus scitulus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 280, pl. 20, figs. 5a-d.

St. Louis L. S.: Alton, Illinois.

Productus semipunctatus. See *Productus punctatus*.**Productus semireticulatus** Martin.

1847. *Productus semireticulatus*. De Koninck, Monog. du Gen. Prod. et Chon., p. 83, pl. 8, figs. 1a-h; pl. 9, figs. 1a-m; pl. 10, figs. 1a-d.

Carboniferous: Harrisville, Bagdad, Cuyahoga, Zanesville, Flint Ridge, Greensburg, and Antrim, Ohio; near Louisville, Kentucky; near St. Louis and St. Charles, Missouri; Leavenworth, on the Missouri River; Long Creek, Crawfordsville, and near New Harmony, Indiana; Sparta, Illinois; Bolivia, South America.

1855. *Productus semireticulatus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 11.

Mountain L. S.: Western States.

1855. *Productus Semireticulatus* var. *Frigidus*. Salter, Belcher's "Last of the Arctic Voyages," p. 388, pl. 36, figs. 13, 14.

Carboniferous: Depot Point.

1856. *Productus semireticulatus*. Hall, Pac. R. R. Rep., vol. 3, p. 103, pl. 2, figs. 16, 17.

Carboniferous: Pecos Village, New Mexico.

1858. *Productus semi-reticulatus*. Marcou, Geol. N. A., p. 46, pl. 5, figs. 4, 4a; pl. 6, fig. 6.

Mountain L. S.: Sierra Madre, Sierra de Mogoyon, Pecos Village, Tigras in the Canyon of San Antonio, Sierra de Sandia, Great Salt Lake, sources of Rio Colorado Chiquito in the Sierra Blanca; El Paso, State of Chihuahua; junction of Rio San Pedro with Rio Gila, Arizona Territory; Vancouver Island.

Productus semireticulatus Martin—Continued.

1858. *Productus semireticulatus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 292.
White Permian L. S.: Guadalupe Mountains.
1859. *Productus semireticulatus* var. *antiquatus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 389.
White Permian L. S.: Guadalupe Mountains.
1861. *Productus semireticulatus*. Newberry, Ives's Colo. Expl. Exped., p. 124.
Upper Carboniferous: Cherty L. S., near junction of Great and Little Colorado rivers; Pecos Village.
1863. *Productus semireticulatus*. Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 174, pl. 9, figs. 20, 21.
Lower Carboniferous L. S.: Windsor, Brookfield, Shubenacadie, East River, Debert River, Minudie, Pugwash, near Amherst, Boulardarie, Cape Breton, Horton Bluff, Grays River, etc., Nova Scotia.
1864. *Productus semireticulatus*. Meek, Pal. Cal., vol. 1, p. 11, pl. 2, figs. 4, 4a.
Carboniferous: Bass's Ranch, Shasta County, California.
1865. *Producta semireticulata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 115.
Marshall Group: Weymouth, Medina County, Ohio; Orange, Cuyahoga County, Ohio.
1868. *Productus semireticulatus*. Dawson, Acad. Geol., p. 296, pl. 97a, b.
Carboniferous L. S.: Windsor, Brookfield, Shubenacadie, East River, Debert River, Minudie, Pugwash, near Amherst, Boulardarie, Cape Breton, Horton Bluff, Gays River, etc., Nova Scotia.
1869. *Producta semireticulata*. Winchell, Safford's Geol. of Tenn., p. 442.
Immediately above Black Shale: Manchester, Cannon County, Tennessee.
1870. *Producta semireticulata*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 249.
Waverly Group: Newark, Sciotoville, Rockville, and Vinton County, Ohio; near Shafer's, Venango County, Pennsylvania.
1872. *Productus semireticulatus*. Meek, U. S. Geol. Surv. Nebr., p. 160, pl. 5, figs. 7a, b.
Upper Coal Measures: Nebraska City, 2½ miles west of Nebraska City, Bennett's Mill, Wyoming, Cedar Bluff, Rock Bluff, Bellevue, Omaha, Plattsmouth, Brownville, Peru, and Aspinwall, Nebraska.
Upper and Lower Coal Measures: Iowa; Illinois; Kansas; Missouri; New Mexico.
1874. *Productus semireticulatus*. Derby, Bull. Cornell Univ. (Sci.), vol. 1, No. 2, p. 47, pl. 4, fig. 8; pl. 6, fig. 18; pl. 7, figs. 5-7, 15, 16.
Coal Measures: Bomjardim and Itaituba, Brazil.
1876. *Productus semireticulatus*. White, Powell's Rep. Geol. Uinta Mts., p. 90.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1877. *Productus semireticulatus*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 69, pl. 7, fig. 5.
Carboniferous: Railroad Canyon, Diamond Mountains; Fossil Hill, White Pine Mountains, Nevada.
1877. *Productus semireticulatus*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 267, pl. 5, figs. 5, 6.
Lower Carboniferous L. S.: North of Snowstorm Hill, Dry Canyon, Oquirrh Mountains, Utah.
1877. *Productus semireticulatus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 111, pl. 8, figs. 1a-c.
Carboniferous: Near Bear Spring, Camp Wingate, and near Santa Fé, New Mexico; Camp Cottonwood, Old Mormon road, Lincoln County, and top of Grass Mountain, Ely range, 35 miles north of Pioche, Nevada; head of Partridge Creek; near Bill Williams's Mountain; Tenney's Ranch; Kaibab Plateau; head of Dry Fork, and Kanab Canyon (Aubrey L. S.), Arizona; crest of Hurricane Hill, near Toquerville, and Meadow Creek, south of Fillmore, Utah.

Productus semireticulatus Martin—Continued.

1878. *Productus semireticulatus*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 629.
Carboniferous: Feilden Isthmus, latitude 83° 43'.
1883. *Productus semireticulatus*. Hall, Rep. N. Y. State Geol. for 1882, pl. (19) 50, figs. 19-23.
Coal Measures: Brazil, South America.
1884. *Productus semireticulatus*. White, 13th Rep. Geol. Surv. Ind., p. 125, pl. 24, figs. 1-3.
Coal Measures: Indiana.
1888. *Productus semireticulatus*. Herrick, Bull. Den. Univ., vol. 3, p. 31, pl. 1, fig. 26; pl. 6, fig. 11; pl. 10, figs. 6, 6a.
Waverly Group: Licking County, Ohio.
1892. *Productus semireticulatus*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 22, fig. 2.
Coal Measures: Newcastle, Ohio.
1892. *Productus semireticulatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17A, figs. 16-18; pl. 19, figs. 19-23.
Coal Measures: Perry County and Newcastle, Ohio; Itaituba, Brazil,
1894. *Productus semireticulatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 50, pl. 36, figs. 4a-c.
Upper Coal Measures: Creighton and Calhoun, Missouri.
1897. *Productus semireticulatus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 30.
Lower Coal Measures: White County, Arkansas.
Marshall Shale: Stone County, Arkansas.
Fayetteville Shale: Searcy County, Arkansas.
Boone Chert: Searcy County, Arkansas.

See also *Productus cora* and *Productus setigerus*.

Productus semireticulatus var. *antiquatus*. See *Productus semireticulatus*.

Productus semistriatus Meek.

1860. *Productus semistriatus*. Meek, Proc. Acad. Nat. Sci. Phil., p. 309.
Coal measures: Timpanogos Canyon, latitude 40° 22', longitude 111° 38'.
1876. *Productus semistriatus*. Meek, Simpson's Expl. Gt. Basin, Utah, p. 349, pl. 1, figs. 7a, b.
Coal Measures: Timpanogos Canyon.
1877. *Productus semistriatus*. Meek, U. S. Geol. Expl. 40 Par., p. 74, pl. 7, figs. 8, 8a.
Carboniferous L. S.: Southeast of Great Salt Lake, Utah.

Productus setigerus Hall.

1858. *Productus setigerus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 638, pl. 19, fig. 3.
Keokuk L. S.: Keokuk, Iowa.
1858. *Productus setigerus*? var. *keokuk*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 639, pl. 19, figs. 4b, c.
Keokuk L. S.: Keokuk, Iowa; Warsaw, Illinois.
1858. *Productus semireticulatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 637, pl. 19, fig. 4a.
Keokuk L. S.: Keokuk, Iowa.
1883. *Productus semireticulatus*. Hall, Rep. N. Y. State Geol. for 1882, pl. (18) 49, figs. 11-13.
Keokuk L. S.: Warsaw, Illinois.
1892. *Productus semireticulatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 18, figs. 11-13.
Keokuk Group: Warsaw, Illinois.

Productus shumardianus. See *Productella shumardana*.

Productus speciosus. See *Productella speciosa*.

Productus spinosus Say.

1823. *Productus spinosus*. Say, Long's Exped. to Rocky Mts., vol. 1, p. 106 (footnote).

From Fort Osage.

1897. *Productus spinosus*. Harris, Bull. Am. Pal., vol. 1, p. 379 (109).

Productus spinulicostus. See *Productella spinulicosta*.

Productus splendens. See *Productus longispinus*.

Productus subaculeatus. See *Productella subaculeata*.

Productus subhorridus Meek.

1877. *Productus subhorridus*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 75, pl. 7, figs. 3-3b.

Carboniferous L. S.: Wasatch Mountains; Hamilton Butte, Ruby Group; Mahogany Peak, Egan Mountains and north slope of Moleen Peak, Elko Range, west side of Long Valley, Ruby Group.

Productus subserratus Say.

1823. *Productus subserratus*. Say, Long's Exped. to Rocky Mts., vol. 1, p. 147 (footnote).

Missouri River, 5 miles below Council Bluffs.

1897. *Productus subserratus*. Harris, Bull. Am. Pal., vol. 1, p. 381 (111).

Productus swallowi Beecher.

1863. *Koninckina Americana*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 94. (Not *Productus americanus* Swallow.)

Third Archimedes L. S.: Barrett's Station, St. Louis County, Missouri.

1890. *Productus Swallowi*. Beecher, Am. Jour. Sci. (3), vol. 40, p. 215.

Productus symmetricus McChesney.

1860. *Productus symmetricus*. McChesney, Desc. New Pal. Foss., p. 35.

Upper Coal Measures: Lasalle and Springfield, Illinois.

1865. *Productus symmetricus*. McChesney, Ill. New Spec. Foss., pl. 1, figs. 9a-b.

1868. *Productus symmetricus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 25, pl. 1, figs. 9a, b.

Upper Coal Measures L. S.; Lasalle and Springfield, Illinois.

1872. *Productus symmetricus*. Meek, U. S. Geol. Surv. Nebr., p. 167, pl. 5, figs. 6a, b; pl. 8, fig. 13.

Upper Coal Measures: Nebraska City, Bennett's Mill, Peru, and Bellevue, Nebraska; Kansas; Iowa; Missouri; Illinois.

Lower Coal Measures: Illinois.

1884. *Productus symmetricus*. White, 13th Rep. Geol. Surv. Ind., p. 123, pl. 25, figs. 1, 2.

Coal Measures: Vermilion, Vigo, Sullivan, Vanderburg, Dubois, Warrick, and Pike counties, Indiana.

1892. *Productus symmetricus*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 22, fig. 4.

Upper Coal Measures: Near Kansas City, Missouri.

1892. *Productus symmetricus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17A, figs. 19, 20.

Upper Coal Measures: Near Kansas City, Missouri.

1894. *Productus symmetricus*. Keyes, Mo. Geol. Surv., vol. 5, p. 48, pl. 36, figs. 2a, b.

Upper Coal Measures: Kansas City, Missouri.

Productus tenuicostus Hall.

1858. *Productus tenuicostus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 675, pl. 24, figs. 2a-d. St. Louis L. S.: Milan, Illinois.

Productus tenuicostus Hall—Continued.

1883. *Productus tenuicostus*. Hall, Rep. N. Y. State Geol. for 1882, pl. (18) 49, fig. 18.
 1892. *Productus tenuicostatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 18, fig. 18.
 St. Louis, L. S.: Milan, Illinois.
 1894. *Productus tenuicostus*. Keyes, Mo. Geol. Surv., vol. 5, p. 44.
 St. Louis L. S.: St. Louis, Missouri.

Productus tubulospinus. See Productus punctatus.**Productus undiferus De Koninck.**

1855. *Productus undiferus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 9.
 Coal Measures: Caseyville and Posey County, Indiana.

Productus villiersi D'Orbigny.

1847. *Productus villiersi*. De Koninck, Monog. du Gen. Prod. et Chon., p. 109, pl. 11, figs. 1a-c.
 Carboniferous L. S.: Bolivia, South America.
 1855. *Productus Villiersi*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 17.
 Keg Creek, Missouri.

Productus viminalis White.

1862. *Productus viminalis*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 29.
 Upper Burlington L. S.: Burlington, Iowa.

Productus vittatus Hall.

1858. *Productus vittatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 639.
 Keokuk L. S.: Keokuk, Iowa; Warsaw and Nauvoo, Illinois.
 1883. *Productus vittatus*. Hall, Rep. N. Y. State Geol. for 1882, pl. (18) 49, figs. 15-17.
 Keokuk L. S.: Near Keokuk, Iowa.
 1892. *Productus vittatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 18, figs. 15-17.
 Keokuk Group: Near Keokuk, Iowa.
 1894. *Productus vittatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 43.
 Keokuk L. S.: Trenton, Missouri; Keokuk, Iowa.

Productus wabashensis Norwood and Pratten.

1855. *Productus Wabashensis*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 13, pl. 1, figs. 6a-d.
 Coal Measures: Near New Harmony, Indiana.

Productus weyprechtii Toulia.

1878. *Productus Weyprehti?* Etheridge, Quart. Jour. Geol. Soc. Lond, vol. 34, p. 631.
 Carboniferous: Cape Joseph Henry, latitude 82° 50'.

Productus wilberanus McChesney.

1860. *Productus wilberanus*. McChesney, Desc. New Pal. Foss., p. 36.
 Coal Measures: Charbonier, Missouri.
 1865. *Productus wilberanus*. McChesney, Ill. New Spec. Foss., pl. 1, fig. 8.
 1868. *Productus Wilberanus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 26, pl. 1, fig. 8.
 Coal Measures: Charbonier, Missouri.

Productus wortheni Hall.

1858. *Productus wortheni*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 635, pl. 19, figs. 1a-b.
 Keokuk L. S.: Nauvoo, Illinois.

Productus (species undetermined).

1852. *Productus*—(sp. indet.). Hall, Stansb. Exped. Gt. Salt Lake, p. 411, pl. 3, fig. 4.
Carboniferous: Missouri River, near Weston.
1868. *Productus*. Rogers, Geol. Rep. Penn., vol. 2, p. 833, fig. 687.
1875. *Productus* (undetermined sp.). Meek, Pal. Ohio, vol. 2, p. 282, pl. 10, figs. 4a-d.
Waverly Group: Sciotoville, Ohio.
1875. *Productus* (undetermined sp.). Meek, Pal. Ohio, vol. 2, p. 283, pl. 10, fig. 3.
Waverly Group: Sciotoville, Ohio.
1877. *Productus* — (†). Whiteaves, Geol. Surv. Canada, Rep. of Prog., 1875-76, p. 101.
Devonian or Carboniferous: Fossil Point, Peace River, Canada.
1887. *Productus* sp. small individual. Herrick, Bull. Den. Univ., vol. 2, pl. 1, fig. 24.
Coal Measures: Flint Ridge, Ohio.
1887. *Productus* sp. Herrick, Bull. Den. Univ., vol. 2, pl. 2, fig. 31.
Coal Measures: Flint Ridge, Ohio.
1888. *Productus*. Herrick, Bull. Den. Univ., vol. 3, pl. 7, fig. 26.
Waverly Group: Licking County, Ohio.

PRÆTUS Steininger, 1830.

Prætus auriculatus Hall. See *Prætus missouriensis*.

Prætus doris Hall.

1860. *Prætus doris*. Hall, 13th Ann. Rep. N.Y. State Cab. Nat. Hist., p. 112.
Goniatite L. S.: Rockford, Indiana.
1865. *Phillipsia Doris*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 133.
Goniatite L. S.: Rockford, Indiana.
1870. *Phillipsia Doris*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 280.
Waverly Group: Rockville, Ohio.
1887. *Phillipsia doris*. Herrick, Bull. Den. Univ., vol. 2, p. 62.
1887. *Phillipsia doris*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 90.
Goniatite L. S.: Rockford, Indiana.

Prætus ellipticus Meek and Worthen.

1865. *Prætus ellipticus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 267.
Kinderhook Group: Jersey County, Illinois.
1868. *Prætus ellipticus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 460, pl. 14, fig. 8.
Kinderhook Group: Jersey County, Illinois.
1887. *Prætus ellipticus*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 82, pl. 3, fig. 3.
Kinderhook Group: Jersey County, Illinois.

Prætus granulatus Wetherby. See *Griffithides granulatus*.

Prætus loganensis Hall and Whitfield.

1877. *Prætus Loganensis*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 264, pl. 4, fig. 33.
Waverly Group: Logan Canyon, Wahsatch Range, Utah.
1887. *Prætus loganensis*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 78.
Waverly Group: Logan Canyon, Wahsatch Range, Utah.

Prætus longicaudus Hall.

1862. *Prætus longicaudus*. Hall, 15th Rep. N. Y. State Cab. Nat. Hist., p. 108.
Hamilton? Iowa.
- *1876. *Prætus longicaudus*. Hall, Ill. Devonian Foss., pl. 20, figs. 32-34.

***Proetus longicaudus* Hall—Continued.**

1881. *Proetus longicaudus*. Williams, Am. Jour. Sci. (3), vol. 21, p. 156.
Upper Carboniferous: Near Madison, Greenwood County, Kansas.
1888. *Proetus* (?) *longicaudus*. Hall and Clarke, Pal. N. Y., vol. 7, p. 131, pl. 20,
figs. 32–34.
† Carboniferous.

***Proetus minutus* Herrick.**

1888. *Proetus minutus*. Herrick, Bull. Den. Univ., vol. 4, p. 56, pl. 1, figs. 7a, b.
Waverly Group: Moot's Run, Licking County, Ohio.
1889. *Proetus minutus*. Herrick, Am. Geol., vol. 3, pl. 1, fig. 7.
1895. *Proetus minutus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 14, fig. 7.
Waverly Group: Moot's Run, Licking County, Ohio.

***Proetus missouriensis* Shumard.**

1855. *Proetus Missouriensis*. Shumard, 1st and 2d Geol. Rep. Mo., p. 196, pl. B,
figs. 13a, b.
Lithographic L. S.: Hannibal, Louisiana, and Chouteau Springs, Missouri.
1862. *Proetus auriculatus*. Hall, 15th Rep. N. Y. State Cab. Nat. Hist., p. 107.
Chemung S. S.: Licking County, Ohio.
1865. *Proetus Missouriensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 133.
1887. *Phillipsia shumardi*. Herrick, Bull. Den. Univ., vol. 2, pp. 58 and 69,
pl. 7, fig. 14.
Waverly Group: Granville, Ohio.
1887. *Proetus missouriensis*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 75, pl. 3,
fig. 1.
Lithographic L. S.: Hannibal, Louisiana, and Chouteau Springs, Missouri.
Waverly Group: Granville, Ohio.
1888. *Proetus Missouriensis*. Hall and Clarke, Pal. N. Y., vol. 7, p. 133, pl. 23,
fig. 32.
Lithographic L. S.: Missouri.
Waverly Group: Licking County, Ohio.
1888. *Phillipsia shumardi*. Herrick, Bull. Den. Univ., vol. 3, p. 29, pl. 2, fig. 22;
pl. 3, fig. 32.
Middle Waverly Freestone: Licking County, Ohio.
1888. *Phillipsia* (*Proetus*) *auriculatus*. Herrick, Bull. Den. Univ., vol. 4, p. 54,
pl. 1, fig. 14.
Waverly Group: Ohio.
1889. *Proetus* (*Phillipsia*) *auriculatus*. Herrick, Am. Geol., vol. 3, pl. 1, fig. 14.
1894. *Proetus missouriensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 233.
Louisiana (Lithographic) L. S.: Hannibal, Louisiana, and Chouteau
Springs, Missouri.
1895. *Proetus auriculatus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 14, figs. 14, 15.
Waverly Group: Near Granville and Newark, Ohio.

***Proetus peroccidens* Hall and Whitfield.**

1877. *Proetus peroccidens*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4,
p. 262, pl. 4, figs. 28–32.
Waverly Group: Ogden and Logan Canyons, Wahsatch Range, and Dry
Canyon, Oquirrh Mountains, Utah.
1887. *Proetus peroccidens*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 79.
Waverly Group: Ogden, Logan Canyon, Wahsatch Range, and Dry Can-
yon, Oquirrh Mountains, Utah.

***Proetus* ? *placidus* Vogdes.**

1896. *Proetus* ? *placidus*. Vogdes, Cal. Acad. Sci. (2), vol. 6, p. 198, fig.
Chouteau L. S.: Sedalia and Providence, Missouri.

***Proetus præcursor* Herrick. See *Phillipsia præcursor*.**

***Proetus swallowi* Shumard.**

1855. *Proetus Swallowi*. Shumard, 1st and 2d Geol. Rep. Mo., p. 196, pl. B, figs. 12a, b.
Lithographic L. S.: Chouteau Springs, Cooper County, and Moniteau County, Missouri.
1887. *Phillipsia swallowi*. Herrick, Bull. Den. Univ., vol. 2, p. 58, pl. 5, fig. 11.
Chemung Group: Chouteau Springs, Cooper County, Missouri.
1894. *Proetus swallowi*. Keyes, Mo. Geol. Surv., vol. 4, p. 234.
Louisiana (Lithographic) L. S.: Chouteau Springs, Missouri.

***Proetus tennesseensis* Winchell.**

1869. *Phillipsia Tennesseeensis*. Winchell, Safford's Geol. Tenn., p. 445.
Shales just above black shale: Hickman and Maury counties, Tennessee.
1870. *Phillipsia Tennesseeensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 259.
Waverly Group: Hickman and Maury counties, Tennessee.
1887. *Proetus tennesseensis*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 80.
Waverly Series: Hickman County, Tennessee.

Proetus trinucleatus*. See *Phillipsia trinucleata*.**Proetus* (species undetermined).**

1888. *Proetus* (*Phillipsia*) sp. close to *P. auriculatus*. Herrick, Bull. Den. Univ., vol. 4, pl. 1, fig. 13.
Waverly Group: Ohio.
1888. *Proetus* (?) (cf. *haldemani*). Herrick, Bull. Den. Univ., vol. 4, p. 55, pl. 1, fig. 12.
Waverly Group: 1 mile east of Harlem, Licking County, Ohio.
1889. *Proetus* (*Phillipsia*) sp. close to *P. auriculatus*. Herrick, Am. Geol., vol. 3, pl. 1, fig. 13.
1889. *Proetus* (*haldemani*?) Herrick, Am. Geol., vol. 3, pl. 1, fig. 12.
1895. *Proetus* sp. ? (perhaps *haldemani*). Herrick, Geol. Surv. Ohio, vol. 7, pl. 14, fig. 12.
Near base of Waverly Group: 1 mile east of Harlem, Licking County, Ohio.
1895. *Proetus* (?). Herrick, Geol. Surv. Ohio, vol. 7, pl. 14, fig. 13.
Upper Waverly Group: Ohio.

PROGONOBLATTINA Scudder, 1879.***Progonoblattina columbiana* Scudder.**

1895. *Progonoblattina columbiana*. Scudder, Bull. U. S. Geol. Surv., No. 124, p. 131, pl. 11, fig. 9.
Lower Coal Measures: Mazon Creek, Illinois.

PROMACRUS Meek, 1871.***Promacrus andrewsi* Meek.**

1871. *Sanguinolites* (*Promacrus*) *Andrewsi*. Meek, Am. Jour. Conch., vol. 7, p. 7.
Waverly S. S.: Sciotoville, Ohio.
1875. *Promacrus Andrewsi*. Meek, Pal. Ohio, vol. 2, p. 308, pl. 17, figs. 1a, b.
Waverly Group: Sciotoville, Ohio.

***Promacrus cuneatus* Hall.**

- * 1870. *Pholadella cuneata*. Hall, Prelim. Not. Lamell. 2, p. 66.
Yellow S. S.: Burlington, Iowa.
1885. *Promacrus cuneatus*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 510, pl. 78, fig. 28.
Yellow S. S.: Burlington, Iowa.

Promacrus missouriensis Swallow.

1860. *Solen* (?) *Missouriensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 655.
Pike County, Missouri.
1871. *Sanguinolites* (*Promacrus*) *Missouriensis*. Meek, Am. Jour. Conch., vol. 7,
p. 6, pl. 1, fig. 2.
Chouteau L. S.: Pike County, Missouri.

Promacrus nasutus Meek.

1871. *Sanguinolites* (*Promacrus*) *nasutus*. Meek, Am. Jour. Conch., vol. 7, p. 6,
pl. 1, fig. 1.
Chouteau L. S.: Chouteau Springs, Missouri.

Promacrus truncatus Herrick.

1888. *Promacra* (?) *truncatus*. Herrick, Bull. Den. Univ., vol. 3, p. 60, pl. 3, fig. 30.
Waverly Group: Licking County, Ohio.

PROMYLACRIS Scudder, 1885.**Promylacris harei** Scudder.

1895. *Promylacris harei*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 48, pl. 2,
fig. 3.
Upper Coal Measures: Kansas City, Missouri.

Promylacris ovalis Scudder.

1885. *Promylacris ovale*. Scudder, Proc. Acad. Nat. Sci. Phil., p. 34.
Carboniferous: Mazon Creek, Illinois.
1890. *Promylacris ovalis*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 403,
pl. 31, figs. 1-4.
Carboniferous: Mazon Creek, Illinois.
1890. *Promylacris ovalis*. Scudder, Foss. Insc. N. A., vol. 1, p. 380, pl. 23, figs. 1-4.
Carboniferous: Mazon Creek, Illinois.
1895. *Promylacris ovalis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 50.
Lower Coal Measures: Mazon Creek, Illinois.

Promylacris rigida Scudder.

1890. *Promylacris rigida*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 403,
pl. 31, fig. 6.
Carboniferous: Mazon Creek, Illinois.
1890. *Promylacris rigida*. Scudder, Foss. Insc. N. A., vol. 1, p. 380, pl. 23, fig. 6.
Carboniferous: Mazon Creek, Illinois.
1895. *Promylacris rigida*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 50, pl. 3,
fig. 1.
Lower Coal Measures: Braidwood, Illinois.

Promylacris testudo Scudder.

1890. *Promylacris testudo*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 403,
pl. 32, fig. 6.
Carboniferous: Mazon Creek, Illinois.
1890. *Promylacris testudo*. Scudder, Foss. Insc. N. A., vol. 1, p. 379, pl. 24, fig. 6.
Carboniferous: Mazon Creek, Illinois.
1895. *Promylacris testudo*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 49, pl. 2,
fig. 2.
Lower Coal Measures: Mazon Creek, Illinois.

PRONORITES Mojsisovics, 1882.**Pronorites cyclolobus** var. *arkansiensis* Smith.

1897. *Pronorites cyclolobus* var. *arkansiensis*. Smith, Proc. Am. Phil. Soc., vol. 35,
p. 57, pl. 24, figs. 1-4.
Lower Coal Measures: Pilot Mountain, Carroll County, Arkansas.

Pronorites (species undetermined).

1897. *Pronorites* sp. indet. Smith, Proc. Am. Phil. Soc., vol. 35, p. 60, pl. 20, fig. 2.

Upper Coal Measures: Scott County, Arkansas.

PROPTETICUS Scudder, 1885.**Propteticus infernus Scudder.**

1885. *Propteticus infernus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 334, pl. 31, figs. 3, 4.

Carboniferous: Near Georgetown, Vermillion County, Illinois.

1890. *Propteticus infernus*. Scudder, Foss. Insc. N. A., vol. 1, p. 298, pl. 17, figs. 3, 4.

Carboniferous: Near Georgetown, Vermillion County, Illinois.

(PROTASTER Forbes, 1849.)

Protaster barrisi. See *Onychaster barrisi*.

Protaster gregarius. See *Aganaster gregarius*.

PROTHYRIS Meek, 1869.**Prothyris elegans Meek.**

1871. *Prothyris elegans*. Meek, Am. Jour. Conch., vol. 7, p. 8, pl. 1, fig. 3.

Coal Measures: Nebraska City, Nebraska; Ohio; Illinois; Michigan.

1872. *Prothyris elegans*. Meek, U. S. Geol. Surv. Nebr., p. 223, pl. 10, figs. 9a, b.

Upper Coal Measures: Nebraska City, Nebraska.

1887. *Prothyris* (cf. *elegans*). Herrick, Bull. Den. Univ., vol. 2, p. 32, pl. 4, fig. 3.

Coal Measures: Flint Ridge, Ohio.

Prothyris meeki Winchell, MS.

1875. *Prothyris Meeki*. Winchell, Pal. Ohio, vol. 2, p. 305, pl. 15, fig. 2.

Waverly Group: Rushville, Ohio.

1888. *Prothyris meeki*. Herrick, Bull. Den. Univ., vol. 3, p. 66, pl. 8, fig. 7.

Waverly Group: Licking County, Ohio.

1888. *Prothyris meeki*. Herrick, Bull. Den. Univ., vol. 4, pl. 4, fig. 2.

Waverly Group: Gann, Ohio.

1899. *Prothyris meeki*. Herrick, Am. Geol., vol. 3, pl. 2, fig. 2.

1895. *Prothyris meeki*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 2.

Kinderhook: Ohio.

PROUTELLA Ulrich, 1890.**Proutella discoidea Prout.**

1860. *Cyclopora discoidea*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 578.

Keokuk L. S.: Warsaw, Illinois.

1866. *Cyclopora discoidea*. Prout, Geol. Surv. Ill., vol. 2, p. 420, pl. 22, fig. 10.

Keokuk Group: Warsaw, Illinois.

1890. *Proutella discoidea*. Ulrich, Geol. Surv. Ill., vol. 8, p. 674, pl. 69, figs. 4-4d.

Keokuk Group, Warsaw, Hamilton, and Nauvoo, Illinois; Keokuk, Iowa.

1894. *Proutella discoidea*. Keyes, Mo. Geol. Surv., vol. 5, p. 37.

Keokuk L. S.: Keokuk, Iowa.

PSEUDOMONOTIS Beyrich, 1862.**Pseudomonotis hawni Meek and Hayden.**

1858. *Monotis Hawni*. Meek and Hayden, Trans. Albany Inst., vol. 4, p. 76.

Permian: Near mouth of Smoky Hill Fork of Kansas River and Helena, Kansas.

***Pseudomonotis hawni* Meek and Hayden—Continued.**

1859. *Monotis Hawni*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 28.
Upper Coal Measures: South of Kansas Falls, Smoky Hill River, and Cottonwood Creek, Kansas.
1864. *Eumicrotis Hawni*. Meek and Hayden, Pal. Up. Mo., p. 54, pl. 2, figs. 5a-c.
Permian: Near mouth of Smoky Hill Fork of Kansas River, and between there and Council Grove; also on Cottonwood Creek, Kansas.
1884. *Eumicrotis Hawni*. White, 13th Rep. Geol. Surv. Ind., p. 142, pl. 30, fig. 10.
Upper Coal Measures: Indiana.
1886. *Eumicrotis Hawni*. Heilprin, 2d Geol. Surv. Penn., Ann. Rep. 1885, p. 455.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Eumicrotis Hawni*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 271.
Mill Creek, L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.

***Pseudomonotis hawni* var. *ovata* Meek and Hayden.**

1864. *Eumicrotis Hawni* var. *ovata*. Meek and Hayden, Pal. Up. Mo., p. 55, pl. 2, figs. 5a, b.
Permian: Near Cottonwood Creek, south of the Santa Fé Road, Kansas.

***Pseudomonotis hawni* var. *sinuata* Meek and Worthen.**

1866. *Eumicrotis Hawni* var. *sinuata*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 338, pl. 27, figs. 12-12b, 13, 14.
Upper Coal Measures: Bridge of north branch of Saline River, Gallatin County, Illinois.

***Pseudomonotis radialis* Phillips.**

1858. *Monotis radialis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 187.
Upper Permian: Smoky Hill Fork, Kansas.
1866. *Avicula speluncaria*. Geinitz, Carb. und Dyas, in Nebr., p. 28, tab. 2, fig. 12.
Nebraska City, Nebraska; Council Grove, Kansas.
1872. *Pseudomonotis radialis*?? Meek, U. S. Geol. Surv. Nebr., p. 201, pl. 9, fig. 3.
Upper Coal Measures: Nebraska City, Nebraska.
1887. Cf. *Pseudomonotis radialis*. Herrick, Bull. Den. Univ., vol. 2, p. 145, pl. 14, fig. 26.
Coal Measures: Flint Ridge, Ohio.

***Pseudomonotis* (species undetermined).**

1872. *Pseudomonotis* sp. Meek, U. S. Geol. Surv. Nebr., p. 200, pl. 2, fig. 11.
Upper Coal Measures: Cedar Bluff and Rock Bluff, Nebraska.

(PTERIA Scopoli, 1777.)

Pteria morganensis*. See *Avicula morganensis*.*PTERINEA Goldfuss, 1826.*****Pterinea cardinata* Winchell.**

1862. *Pterinea cardinata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 412.
Marshall S. S.: Pointe Aux Barques, Michigan.

***Pterinea crenistriata* Winchell.**

1862. *Cardiopsis crenistriata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 417.
Marshall Group: Columbia, Michigan.
1865. *Pterinea crenistriata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 124.

Pterinea gibbosa*. See *Monopteria gibbosa*.**Pterinea newarkensis* Meek.**

1871. *Pterinea* (*Pteronites*?) *newarkensis*. Meek, Proc. Acad. Nat. Sci. Phil., p. 162.
Waverly Group: Newark, Ohio.

***Pterinea pintoensis* Walcott.**

1884. *Pterinea Pintoensis*. Walcott, Pal. Eureka Dist., p. 234, pl. 19, fig. 10.
Lower Carboniferous: Eureka District, Nevada.

***Pterinea spinalata* Winchell.**

1863. *Avicula acanthoptera*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 8. (Not *A. acanthoptera* Hall, 1843.)
Yellow S. S.: Burlington, Iowa.
1865. *Pterinea spinulata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 124.

***Pterinea strigosa* White.**

1862. *Gervillia strigosa*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 31.
Chemung Group: Burlington, Iowa.

***Pterinea undulata* Meek and Worthen.**

1868. *Pterinea ? undulata*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 456, pl. 14, fig. 5.
Kinderhook Group: Burlington, Iowa; ? Kinderhook, Illinois.

PTERINOPECTEN Hall, 1883.***Pterinopecten ashlandensis* Herrick.**

1888. *Pterinopecten* (?) *ashlandensis*. Herrick, Bull. Den. Univ., vol. 4, p. 33, pl. 11, fig. 4.
Waverly Group: Lyon Falls, Ashland County, Ohio.
1895. *Pterinopecten ashlandensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, fig. 22.
Cuyahoga Shale: Near Ashland, Ohio.

***Pterinopecten cariniferus* Herrick.**

1888. *Pterinopecten cariniferus*. Herrick, Bull. Den. Univ., vol. 3, p. 58, pl. 12, figs. 8, 9, 42.
Waverly Group: Licking County, Ohio.
1888. *Pterinopecten cariniferus*. Herrick, Bull. Den. Univ., vol. 4, p. 33, pl. 5, fig. 12.
Waverly Group: Ashland County and Lodi, Ohio.
1889. *Pterinopecten cariniferus*. Herrick, Am. Geol., vol. 3, pl. 3, fig. 12.
1895. *Pterinopecten cariniferus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, fig. 16; pl. 24, fig. 24.
Cuyahoga Shale: Moot's Run, Ohio.

***Pterinopecten hoosacensis* Walcott.**

1884. *Pterinopecten Hoosacensis*. Walcott, Pal. Eureka Dist., p. 232, pl. 8, fig. 9.
Lower Carboniferous: Eureka District, Nevada.

***Pterinopecten latus* Hall.**

1884. *Pterinopecten latus*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 63, pl. 1, fig. 13.
Marcellus Shale: Bloomfield, Ontario County, New York.
1888. *Pterinopecten latus*. Herrick, Bull. Den. Univ., vol. 4, p. 114, pl. 5, fig. 13.
Waverly Group: Moot's Run, Licking County, Ohio.
1889. *Pterinopecten latus*. Herrick, Am. Geol., vol. 3, pl. 3, fig. 13.
1895. *Pterinopecten latus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, fig. 15.
Cuyahoga Shale: Moot's Run, Ohio.

***Pterinopecten sedaliensis* Miller.**

1891. *Pterinopecten sedaliensis*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 93, pl. 20, figs. 8, 9.
Chouteau L. S.: Sedalia, Missouri.
1892. *Pterinopecten sedaliensis*. Miller, 17th Rep. Geol. Surv. Ind., p. 703, pl. 20, figs. 8, 9.
Chouteau L. S.: Sedalia, Missouri.

Pterinopecten spio Walcott.

1884. *Pterinopecten Spio*. Walcott, Pal. Eureka Dist., p. 233, pl. 8, figs. 1, 1a.
Lower Carboniferous: Eureka District, Nevada.

Pterinopecten (species undetermined).

1888. *Pterinopecten* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 12.
Bedford Shale: Central College, Ohio.
1889. *Pterinopecten* sp. Herrick, Am. Geol., vol. 3, pl. 4, fig. 12.
Bedford Shale: Ohio.
1895. *Pterinopecten* sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 12.
Shale above Berea Grit: Ohio.

PTERONITES McCoy, 1884.**Pteronites gayensis** Dawson.

1868. *Pteronites Gayensis*. Dawson, Acad. Geol., p. 301, fig. 101.
Carboniferous L. S.: Gay's River, Nova Scotia.

Pteronites gayensis var. *ornatus* Dawson.

1883. *Pteronites Gayensis* (var. *ornatus*). Dawson, Rep. Peter Redpath Mus., No. 2, p. 14.
Lower Carboniferous L. S.: Port-au-Port, Newfoundland.

Pteronites hopkinsi Weller.

1897. *Pteronites hopkinsi*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 261, pl. 13, fig. 10.
Batesville S. S.: Batesville, Arkansas.

Pteronites laevis Weller.

1897. *Pteronites laevis*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 262, pl. 19, figs. 11, 12.
Batesville S. S.: Batesville, Arkansas.

Pteronites obliquus Herrick.

1888. *Pteronites (Leptodesma)? obliquus*. Herrick, Bull. Den. Univ., vol. 3, p. 58 pl. 4, fig. 20; pl. 7, fig. 7.
Waverly Group: Licking County, Ohio.

Pteronites spergenensis Whitfield.

1882. *Pteronites Spergenensis*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 56, pl. 7, fig. 1.
St. Louis Group: Spergen Hill, Indiana.
1883. *Pteronites Spergenensis*. Hall, 12th Rep. Geol. Surv. Ind., pl. 30, fig. 1.
St. Louis Group: Spergen Hill, Indiana.

PTEROTOCRINUS Lyon and Casseday, 1860.**Pterotoocrinus acutus** Wetherby.

1879. *Pterotoocrinus acutus*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 134, pl. 11, fig. 2.
Kaskaskia Group: Pulaski County, Kentucky.
1879. *Pterotoocrinus spatulatus*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 137, pl. 11, fig. 3.
Kaskaskia Group: Pulaski County, Kentucky.
1897. *Pterotoocrinus acutus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 799, pl. 79, figs. 3a-g.
Kaskaskia Group: Sloan's Valley, Pulaski County, Kentucky.

***Pterotocrinus acutus* var. *bifurcatus* Wetherby.**

1879. *Pterotocrinus bifurcatus*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 136, pl. 11, fig. 1.

Kaskaskia Group: Pulaski County, Kentucky.

1897. *Pterotocrinus acutus* var. *bifurcatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 801, pl. 79, figs. 9a, b.

Kaskaskia Group: Sloan's Valley, Pulaski County, Kentucky.

Pterotocrinus bifurcatus. See *Pterotocrinus acutus* var. *bifurcatus*.

***Pterotocrinus capitalis* Lyon.**

1875. *Asterocrinus capitalis*. Lyon, Geol. Rep. Ky., vol. 3, p. 472, pl. 3, figs. 1-1k. Lower calcareous beds of Millstone Grit: Crittenden County, Kentucky.

1897. *Pterotocrinus capitalis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 794, pl. 79, figs. 6a, b.

Kaskaskia Group: Crittenden County, Kentucky.

***Pterotocrinus chesterensis* Meek and Worthen.**

1860. *Dichocrinus* (*Pterotocrinus*) *Chesterensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 383.

Chester L. S.: Chester, Illinois.

1866. *Pterotocrinus chesterensis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 292, pl. 23, figs. 1a-c.

Chester Group: Hardin County, Illinois.

1894. *Pterotocrinus chesterensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 206.

Kaskaskia L. S.: Chester, Illinois.

1897. *Pterotocrinus chesterensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 802, pl. 79, figs. 5a, b.

Kaskaskia Group: Hardin County, Illinois.

***Pterotocrinus coronarius* Lyon.**

1857. *Asterocrinus* (?) *coronarius*. Lyon, Geol. Rep. Ky., vol. 3, p. 476, pl. 1, figs. 1, 1a.

Lower calcareous beds of Millstone Grit: Crittenden County, Kentucky.

1897. *Pterotocrinus coronarius*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 795, pl. 79, figs. 7a, b.

Kaskaskia Group: Crittenden County, Kentucky.

***Pterotocrinus crassus* Meek and Worthen.**

1860. *Dichocrinus* (*Pterotocrinus*) *crassus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 382.

Chester L. S.: Hardin County, Illinois.

1866. *Pterotocrinus crassus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 290, pl. 23, figs. 2a, b.

Chester Group: Hardin County, Illinois.

1897. *Pterotocrinus crassus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 801, pl. 79, fig. 8.

Kaskaskia Group: Hardin County, Illinois.

***Pterotocrinus depressus* Lyon and Casseday.**

1860. *Pterotocrinus depressus*. Lyon and Casseday, Am. Jour. Sci. (2), vol. 29, p. 68.

Millstone Grit: Grayson Springs, Kentucky, and Dr. Baker's furnace, Edmonson County, Kentucky.

1873. *Pterotocrinus depressus*? Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 599, pl. 21, fig. 13.

Chester Group: Kaskaskia, Illinois.

1897. *Pterotocrinus depressus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 796, pl. 79, figs. 2a-e.

Kaskaskia Group: Grayson, Edmonson, and Pulaski counties, Kentucky.

***Pterotocrinus protuberans* Hall.**

1858. *Dichocrinus protuberans*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 689, pl. 25, fig. 7.
Kaskaskia L. S.: Chester, Illinois.

***Pterotocrinus pyramidalis* Lyon and Casseday.**

1860. *Pterotocrinus pyramidalis*. Lyon and Casseday, Am. Jour. Sci. (2), vol. 29, p. 69.
Third L. S. of Millstone Grit Series: Edmonson, Grayson, and Breckinridge counties, Kentucky.
1897. *Pterotocrinus pyramidalis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 798, pl. 79, figs. 4a, b.
Kaskaskia Group: Edmonson, Grayson, and Breckinridge counties, Kentucky; Morton County, Indiana.

***Pterotocrinus rugosus* Lyon and Casseday.**

1860. *Pterotocrinus rugosus*. Lyon and Casseday, Am. Jour. Sci. (2), vol. 29, p. 71.
Lowest Siliceous mud bed: Falls of Rough Creek, Breckinridge County, Kentucky.

Pterotocrinus spatulatus*. See *Pterotocrinus acutus*.**Pterotocrinus wetherbyi* Miller and Gurley.**

1895. *Pterotocrinus wetherbyi*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 44, pl. 4, figs. 6-9.
Kaskaskia Group: Pulaski County, Kentucky.

PTILODICTYA Lonsdale, 1839.***Ptilodictya carbonaria* Meek. See *Oystodictya carbonaria*.*****Ptilodictya dictyota* Meek.**

1873. *Ptilodictya* (*Stictopora*?) *dictyota*. Meek, U. S. Geol. Surv. Mont., Idaho, Wyo., and Utah, p. 465.
Carboniferous: Outlet of Mystic Lake, Montana.

Ptilodictya sereata* Meek. See *Prismopora sereata*.**Ptilodictya triangulata*. See *Prismopora triangulata*.****PTILOPORA McCoy, 1844.*****Ptilopora acuta* Ulrich.**

1890. *Ptilopora acuta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 622, pl. 65, figs. 4, 4a.
Keokuk Group: Bentonsport and Keokuk, Iowa.
Burlington Group: Burlington, Iowa.
1894. *Ptilopora acuta*. Keyes, Mo. Geol. Surv., vol. 5, p. 31.
Keokuk L. S.: Keokuk, Iowa.

***Ptilopora cylindracea* Ulrich.**

1890. *Ptilopora cylindracea*. Ulrich, Geol. Surv. Ill., vol. 8, p. 623, pl. 66, figs. 2-2b.
Keokuk Group: King's Mountain, Kentucky; Bentonsport, Iowa.
1894. *Ptilopora cylindracea*. Keyes, Mo. Geol. Surv., vol. 5, p. 32.
Keokuk L. S.: Bentonsport, Iowa.

***Ptilopora paupera* Ulrich.**

1888. *Ptilopora paupera*. Ulrich, Bull. Den. Univ., vol. 4, p. 74.
Waverly Group: Lodi, Ohio.
1890. *Ptilopora paupera*. Ulrich, Geol. Surv. Ill., vol. 8, p. 624, pl. 66, fig. 10.
Keokuk Group: King's Mountain, Kentucky.

Ptilopora prouti Hall.

1858. *Ptilopora prouti*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 653, pl. 22, figs. 6a-c, 7.
Warsaw L. S.: Warsaw, Illinois.
1890. *Ptilopora prouti*. Ulrich, Geol. Surv. Ill., vol. 8, p. 625, pl. 65, figs. 3-3c.
Warsaw Beds: Monroe County and Warsaw, Illinois; near New Providence, Indiana.
St. Louis Group: Barrett's Station, Missouri.
1894. *Ptilopora prouti*. Keyes, Mo. Geol. Surv., vol. 5, p. 32.
St. Louis L. S.: Barrett's Station, Missouri.

Ptilopora valida Ulrich.

1890. *Ptilopora valida*. Ulrich, Geol. Surv. Ill., vol. 8, p. 623, pl. 65, figs. 5-5c;
pl. 66, figs. 1-1b.
Keokuk Group: Bentonsport and Keokuk, Iowa; Jersey County, Illinois.
1894. *Ptilopora valida*. Keyes, Mo. Geol. Surv., vol. 5, p. 32.
Keokuk L. S.: Bentonsport, Iowa.

PTYCHOPTERIA Hall, 1884.**Ptychopteria protoforme** Walcott.

1884. *Ptychopteria protoforme*. Walcott, Pal. Eureka Dist., p. 235, pl. 8, fig. 5.
Lower Carboniferous: Eureka District, Nevada.

PTYCHOSPIRA Hall, 1893.**Ptychospira plicata** Miller.

1892. *Retzia plicata*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 62, pl. 9,
figs. 29-31.
Chouteau L. S.: Sedalia, Missouri.
1894. *Retzia plicata*. Miller, 18th Rep. Geol. Surv. Ind., p. 316, pl. 9, figs. 29-31.
Chouteau L. S.: Sedalia, Missouri.

Ptychospira sexplicata White and Whitfield.

1862. *Retzia sexplicata*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8,
p. 294.
Chemung Group: Burlington, Iowa.
1894. *Ptychospira sexplicata*. Hall and Clarke, Int. to Study of Brach., pt. 2,
pl. 36, figs. 22, 23.
Kinderhook Group: Illinois.
1895. *Ptychospira* (cf.) *sexplicata*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 50,
figs. 13, 14.
Burlington L. S.: Burlington, Iowa.
1895. *Ptychospira sex-plicata*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 83,
fig. 28.
Kinderhook Group: Burlington, Iowa.

PTYCHOSTYLUS Gurley, 1884.**Ptychostylus heterocostalis** Gurley.

1884. *Ptychostylus heterocostalis*. Gurley, New Carb. Foss., Bull. No. 2, p. 5.
Upper Coal Measures: Kansas City, Missouri.

Ptychostylus subtumidus Gurley.

1884. *Ptychostylus subtumidus*. Gurley, New Carb. Foss., Bull. No. 2, p. 6.
Kinderhook Shales: Pike County, Missouri.

(PUGIUNCULUS Barrande, 1847.)**Pugiunculus aculeatus** Hall. See *Hyalithes aculeatus*.

PUGNAX Hall, 1893.

Pugnax dawsonianus Davidson.

1863. *Rhynchonella Dawsoniana*. Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 172, pl. 9, figs. 13, 14.

Lower Carboniferous L. S.: Lennox Passage, Nova Scotia.

1868. *Rhynchonella Dawsoniana*. Dawson, Acad. Geol., p. 294, figs. 93a, b.

Carboniferous L. S.: Lennox Passage, Nova Scotia.

1895. *Pugnax* (?) *Dawsonianus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 62, figs. 30-33.

Carboniferous L. S.: Windsor, Nova Scotia.

Pugnax eatoniaeformis. See *Pugnax rockymontana*.

Pugnax explanatus. See *Camarophoria explanata*.

Pugnax globulina Phillips.

1863. *Camarophoria* ? *globulina* ? Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 171, pl. 9, figs. 11, 12.

Lower Carboniferous L. S.: DeBert River, Nova Scotia.

1868. *Camarophoria* (?) *globulina* (?). Dawson, Acad. Geol., p. 293, figs. 92a, b.

Carboniferous L. S.: DeBert River, Nova Scotia.

See also *Pugnax uta*.

Pugnax greenianus Ulrich.

1886. *Rhynchonella greeniana*. Ulrich, Cont. to Am. Pal., vol. 1, No. 1, p. 26, pl. 3, figs. 1-1d.

Knobstone Group: 3 miles west of New Albany, Indiana.

1895. *Pugnax Greenianus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 60, figs. 36-38.

Keokuk Group: New Albany, Indiana.

Pugnax grosveneri Hall.

1856. *Rhynchonella Grosveneri*. Hall, Trans. Albany Inst., vol. 4, p. 10.

St. Louis L. S.: Spergen Hill and Bloomington, Indiana; Alton, Illinois.

1882. *Rhynchonella Grosveneri*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 53, pl. 6, figs. 31-34.

St. Louis Group: Spergen Hill and Bloomington, Indiana; Alton, Illinois.

1883. *Rhynchonella grosveneri*. Hall, 12th Rep. Geol. Surv. Ind., p. 331, pl. 29, figs. 31-34.

St. Louis Group: Spergen Hill and Bloomington, Indiana; Alton, Illinois.

1895. *Pugnax Grosveneri*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 60, figs. 13-17.

St. Louis Group: Spergen Hill, Indiana.

Pugnax missouriensis Shumard.

1855. *Rhynchonella Missouriensis*. Shumard, Geol. Rep. Mo., p. 204, pl. C, fig. 5a.

Chouteau L. S.: Vandever's Falls, Cooper County, and Providence, Boone County, Missouri.

1866. *Rhynchonella missouriensis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 153, pl. 14, figs. 4a, b.

Goniatite Bed: Rockford, Indiana.

Kinderhook Group: Chouteau Springs, Missouri.

1894. *Rhynchonella missouriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 100.

Chouteau L. S.: Vandever Falls and Providence, Missouri.

1895. *Pugnax Missouriensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 60, figs. 33, 34; pl. 62, figs. 44, 45.

Chouteau L. S.: Pike County, Missouri.

Yellow Sandstone: Burlington, Iowa.

Pugnax mutatus Hall.

1856. *Rhynchonella mutata*. Hall, Trans. Albany Inst., vol. 4, p. 10.
St. Louis L. S.: Alton, Illinois.
1858. *Rhynchonella mutata*. Hall, Geol. Iowa., vol. 1, pt. 2, p. 658, pl. 23, figs. 2a, b.
Warsaw L. S.: Near Alton, Illinois.
1882. *Rhynchonella mutata*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 52,
pl. 6, figs. 43-45.
St. Louis Group: Alton, Illinois.
Keokuk L. S.: Warsaw, Illinois.
1883. *Rhynchonella mutata*. Hall, 12th Rep. Geol. Surv. Ind., p. 332, pl. 29,
figs. 43-45.
St. Louis Group: Spergen Hill and Lanesville, Indiana.
1894. *Rhynchonella mutata*. Keyes, Mo. Geol. Surv., vol. 5, p. 103.
Keokuk L. S.: Boonville, Missouri.
1895. *Pugnax mutatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 60, figs. 18-22.
St. Louis Group: Spergen Hill, Indiana.
1897. *Rhynchonella mutata*? Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 257, pl. 18,
figs. 13-15.
Batesville S. S.: Batesville, Arkansas.

Pugnax ottumwa White.

1862. *Rhynchonella Ottumwa*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 23.
St. Louis L. S.: Ottumwa and near Oskaloosa, Iowa.
1880. *Rhynchonella ottumwa*. White, Cont. to Inv. Pal., No. 8, p. 165, pl. 41,
figs. 5a-c.
St. Louis Group: Ottumwa, Iowa, and various localities in Iowa, Illinois,
and Missouri.
1894. *Rhynchonella ottumwa*. Keyes, Mo. Geol. Surv., vol. 5, p. 103.
St. Louis L. S.: St. Francisville, Missouri.
1895. *Pugnax Ottumwa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 60, figs. 23-26.
St. Louis Group: Pella, Iowa.

Pugnax pugnus Martin.

1863. *Rhynchonella pugnus*? Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19,
p. 173.
Lower Carboniferous L. S.: Windsor and East River, Nova Scotia.
1868. *Rhynchonella pugnus* (?). Dawson Acad. Geol., p. 295.
Carboniferous L. S.: Windsor and East River, Nova Scotia.

Pugnax rockymontana Marcon.

1858. *Terebratulula rocky-montana*. Marcon, Geol. N. A., p. 50, pl. 6, figs. 13-13c.
Mountain L. S.: Pecos Village, New Mexico.
1860. *Rhynchonella eatoniaformis*. McChesney, Desc. New Pal. Foss., p. 49.
Coal Measures: Graysville, Illinois; Big Creek L. S., Indiana.
1877. *Rhynchonella Rockymontana*. White, U. S. Geog. Surv. W. 100 Merid., vol.
4, p. 131, pl. 9, figs. 1a-d.
Carboniferous: Near Beckwith Spring, Cedar Range, Utah.
1895. *Pugnax eatoniiformis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 60,
figs. 11, 12.
Coal Measures: Graysville, Illinois.

Pugnax striatocostata Meek and Worthen.

1855. *Rhynchonella Missouriensis*. Shumard, Geol. Rep. Mo., p. 204, pl. C, figs.
5b, c. (Not fig. 5a.)
Chouteau L. S.: Vandever's Falls, Cooper County, and Providence, Boone
County, Missouri.
1868. *Rhynchonella striatocostata*. Meek and Worthen, Geol. Surv. Ill., vol. 3,
p. 452.

Pugnax striaticostata Meek and Worthen—Continued.

1868. *Rhynchonella Missouriensis*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 450, pl. 14, figs. 7a-d.
Kinderhook Group: Kinderhook, Pike County, Illinois.
1870. *Rhynchonella Missouriensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 253.
Waverly Group: Sciotoville, Ohio.

Pugnax swallovia Shumard.

1859. *Camarophoria swallovia*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 394, pl. 11, figs. 1a-e.
White Permian L. S.: Guadalupe Mountains.
1895. *Pugnax swallovia*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 60, figs. 27-32.
Upper Coal Measures: Manhattan, Kansas.

Pugnax uta Marcon.

1852. *Terebratula pugnus*. Roemer, Kreid. von Texas, p. 89.
Carboniferous: San Saba Valley, Texas.
1858. *Terebratula uta*. Marcon, Geol. N. A., p. 51, pl. 6, figs. 12-12c.
Mountain L. S.: Near Salt Lake City, Utah.
1858. *Rhynchonella (Camarophoria) Osagensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 219.
Upper Coal Measures: Missouri and Kansas.
1859. *Rhynchonella uta*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 27.
Upper Coal Measures: Manhattan, Kansas.
1861. *Rhynchonella uta*. Newberry, Ives's Colo. Expl. Exped., p. 128.
Upper Carboniferous: Near mouth of Little Colorado River.
1866. *Camarophoria globulina*. Geinitz, Carb. und Dyas in Nebr., p. 38, taf. 3, fig. 5.
Bennett's Mill and Nebraska City, Nebraska.
1872. *Rhynchonella Osagensis*. Meek, U. S. Geol. Surv. Nebr., p. 179, pl. 1, figs. 9a, b; pl. 6, figs. 2a, b.
Upper Coal Measures: Nebraska City, Nebraska.
Coal Measures: Iowa; Missouri; Kansas.
Upper, Middle, and Lower Coal Measures: Illinois.
1873. *Rhynchonella Osagensis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 571, pl. 26, fig. 22.
Coal Measures: Danville, Illinois, and Fulton County, Illinois.
1877. *Rhynchonella Uta*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 128, pl. 9, figs. 2a-c.
Carboniferous: North fork of Lewiston Canyon, Oquirrh range, and at Meadow Creek, south of Fillmore, Utah.
1884. *Rhynchonella uta*. White, 13th Rep. Geol. Surv. Ind., p. 132, pl. 25, fig. 6.
Coal Measures: Indiana.
1891. *Rhynchonella uta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 247.
Lower Coal Measures: Des Moines, Iowa.
1894. *Rhynchonella uta*. Keyes, Mo. Geol. Surv., vol. 5, p. 103, pl. 41, fig. 7.
Upper Coal Measures: Kansas City and Lexington, Missouri.
1894. *Pugnax uta*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 44, figs. 17-19.
Coal Measures: Manhattan, Kansas.
1895. *Pugnax Uta*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 60, figs. 39-42.
Coal Measures: Manhattan, Kansas.
1897. *Rhynchonella uta*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 30.
Upper Coal Measures: Sebastian County, Arkansas, and Poteau Mountain, Indian Territory.

Pugnax (species undetermined).

1896. *Pugnax* sp. ? Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 60, figs. 46-48.
Coal Measures: Graham County, Texas.

PUPA Humphrey, 1797.**Pupa bigsbyi** Dawson.

1880. *Pupa Bigsbyi*. Dawson, Am. Jour. Sci. (3), vol. 20, p. 410, figs. 5, 6.
Coal Measures: South Joggins, Nova Scotia.
1883. *Pupa bigsbyi*. White, 3d Ann. Rep. U. S. Geol. Surv., p. 456, pl. 2, figs. 9, 10.

Pupa vermilionensis Bradley.

1872. *Pupa Vermilionensis*. Bradley, Am. Jour. Sci. (3), vol. 4, p. 87, fig. 1.
Coal Measures: Petty's Ford of the Little Vermilion River, below Georgetown, Vermilion County, Illinois.
1880. *Pupa Vermilionensis*. Dawson, Am. Jour. Sci. (3), vol. 20, p. 410, figs. 8, 9, 14c.
Coal Measures: Pelly's Fort, Vermilion River, Illinois.
1883. *Pupa vermilionensis*. White, 3d Ann. Rep. U. S. Geol. Surv., p. 456, pl. 2, figs. 13, 14.

Pupa vetusta Dawson.

1860. *Pupa vetusta*. Dawson, Quart. Jour. Geol. Soc. Lond., vol. 16, p. 270, figs. 1-3.
Coal Formation: South Joggins, Nova Scotia.
1868. *Pupa Vetusta*. Dawson, Acad. Geol., p. 383, figs. 149a-d.
Coal Measures: Joggins, Nova Scotia.
1880. *Pupa vetusta*. Dawson, Am. Jour. Sci. (3) vol. 20, p. 405, figs. 1-4.
Coal Measures: Joggins, Nova Scotia.
1883. *Pupa vetusta*. White, 3d Ann. Rep., U. S. Geol. Surv., p. 456, pl. 2, figs. 1, 2.

Pupa vetusta var. *tenuistriata* Dawson.

1880. *Pupa vetusta* var. *tenuistriata*. Dawson, Am. Jour. Sci. (3), vol. 20, p. 406.
Coal Measures: South Joggins, Nova Scotia.

RACHURA Scudder, 1878.**Rachura venosa** Scudder.

1878. *Rachura venosa*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 19, p. 299, pl. 9, figs. 3-3a.
Coal Measures: Vermilion County, Illinois.
1889. *Rachura venosa*. Packard, Proc. Bost. Soc. Nat. Hist., vol. 24, p. 212.
Coal Measures: Danville, Illinois.

RAMIPORA Toulà, 1875.**Ramipora hochstetteri** Toulà.

1875. *Ramipora Hochstetteri*. Toulà, Neu. Jahrb., Jahrg. 1875, p. 230, taf. 10, figs. 1a, b.
Permo Carboniferous: Spitzbergen.
1878. *Ramipora Hochstetteri*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 627.
Carboniferous: Cape Joseph Henry, latitude 82° 50'.

REMELECERAS Hyatt, 1894.**Remeleceras clarkense** Miller and Gurley.

1897. *Remeleceras clarkense*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 49, pl. 4, figs. 1-3.
Knobstone Group: Sampson Springs, Clarke County, Indiana.

(RETEPORA Lamark, 1801.)

Retepora archimedes Owen. See *Archimedes archimedes*.

RETICULARIA McCoy, 1844.

Reticularia clara Swallow.

1863. *Spirifer clarus*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 86.
Archimedes L. S.: Ste. Genevieve County, Missouri.

Reticularia cooperensis Swallow.

1860. *Spirifer Cooperensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 643.
Chouteau L. S.: Cooper County, Missouri.
1860. *Spirifer semiplicata*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 111.
Goniatite L. S.: Rockford, Indiana.
1862. *Spirifer hirtus*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8,
p. 293.
Chemung Group: Burlington, Iowa.
1865. *Spirifera hirta?* Winchell, Proc. Acad. Nat. Sci. Phil., p. 119.
Bed No. 6: Burlington, Iowa.
1866. *Spirifer cooperensis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 155,
pl. 14, figs. 5a, b.
Kinderhook Group: Chouteau Springs, Missouri.
1869. *Spirifera hirta?* Winchell, Safford's Geol. of Tenn., p. 442.
Shale, just above Black Shale: Hickman and Maury counties, Tennessee.
1870. *Spirifera hirta?* Winchell, Proc. Am. Phil. Soc., vol. 11, p. 251.
Waverly Group: Tennessee.
1888. *Spirifer? hirtus?* Herrick, Bull. Den. Univ., vol. 3, p. 47, pl. 3, fig. 2.
Waverly Group: Licking County, Ohio.
1888. *Spirifer hirtus*. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 20.
Waverly Group: Cuyahoga Falls, Ohio.
1894. *Spirifera cooperensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 78.
Chouteau L. S.: Chouteau Springs, Missouri.
1895. *Spirifer hirtus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 38, fig. 14.
Kinderhook Group: Illinois.
1895. *Spirifer* (cf.) *hirtus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 84,
figs. 36, 37.
Waverly Group: Richfield, Ohio.

Reticularia guadalupensis Shumard.

1859. *Spirifer Guadalupensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 391.
White Permian L. S.: Guadalupe Mountains.

Reticularia lineatoides Swallow.

1860. *Spirifer lineatoides*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 645.
Enerinital L. S.: Missouri.
1894. *Spirifera lineatoides*. Keyes, Mo. Geol. Surv., vol. 5, p. 80, pl. 40, fig. 6.
Burlington L. S.: Hannibal, Missouri.

Reticularia perplexa McChesney.

1856. *Spirifer lineatus*. Hall, Pac. R. R. Rep., vol. 3, p. 101, pl. 2 figs. 6-8. (Not
S. lineatus Martin, 1809.)
Carboniferous: Pecos Village, New Mexico.
1858. *Spirifer lineatus*. Marcon, Geol. N. A., p. 50, pl. 7, figs. 5-5c.
Mountain L. S.: Pecos Village and Tigras, New Mexico.
1859. *Spirifer lineatus*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 28.
Upper Coal Measures: Leavenworth, Kansas.
1860. *Spirifer perplexa*. McChesney, Desc. New Pal. Foss., p. 43.
Upper Coal Measures: Almost every part of the country where rocks of
that age occur.

Reticularia perplera McChesney—Continued.

1861. *Spirifer lineatus*. Newberry, Ives's Colo. Expl. Exped., p. 127.
Upper Carboniferous: Cherty L. S. west of Little Colorado River; vicinity of Santa Fe, New Mexico.
1864. *Spirifer lineatus*. Meek, Pal. Cal., vol. 1, p. 13, pl. 2, figs. 6-6d.
Carboniferous: Bass's Ranch, Shasta County, California.
1866. *Spirifer lineatus*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 408.
Coal Measures: Mississippi Valley.
1866. *Spirifer lineatus* var. *perplera*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 408.
Coal Measures: Mississippi Valley.
1866. *Spirifer lineatus* var. *striato-lineatus*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 408.
Upper and Middle Coal Measures: Missouri.
1872. *Spirifer lineatus*? Meek, U. S. Geol. Surv. Nebr., pl. 2, figs. 3a, b.
Upper Coal Measures: Platte River, Nebraska.
1874. *Spirifera (Martinia) perplera*. Derby, Bull. Cornell Univ. (Sci.), vol. 1, No. 2, p. 16, pl. 3, figs. 27, 39, 40, 45, 50; pl. 8, fig. 13.
Coal Measures: Bomjardim and Itaituba, Brazil, and River Pichia, Peru.
1882. *Spirifer (Martinia) lineatus*. White, 11th Rep. Geol. Surv. Ind., p. 372, pl. 42, figs. 4-6.
Coal Measures: Eugene, Indiana.
1884. *Spirifer (Martinia) lineatus*. White, 13th Rep. Geol. Surv. Ind., p. 133, pl. 27, figs. 4-6.
Coal Measures: Fountain, Park, Vermilion, Vigo, Sullivan, Gibson, Pike, Knox, Posey, Vanderburg, and Warrick counties, Indiana.
1886. *Spirifer lineatus*? Heilprin, 2d Geol. Surv. Penn., Ann. Rep. for 1885, p. 453.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Spirifer lineatus*? Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 269.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Spirifera (Martinia) lineata*? Herrick, Bull. Den. Univ., vol. 2, p. 46, pl. 1, figs. 13a-c.
Coal Measures: Flint Ridge, Ohio.
1888. *Spirifera lineata*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 230.
Lower Coal Measures: Des Moines, Iowa.
1891. *Spirifer (Martinia) lineata*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 603, pl. 16, figs. 3-5.
Coal Measures: Hocking County, Ohio.
1894. *Spirifera perplera*. Keyes, Mo. Geol. Surv., vol. 5, p. 84.
Upper Coal Measures: Kansas City, Missouri.
1895. *Spirifera (Martinia) lineata*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 488, pl. 12, figs. 3-5.
Coal Measures: Hocking County, Ohio.
1895. *Spirifer lineatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 38, figs. 2, 4, 7, 8.
Coal Measures: Iowa.

Reticularia pseudolineata Hall.

1858. *Spirifer pseudolineatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 645, pl. 20, fig. 4.
Keokuk L. S.: Keokuk, Iowa; Warsaw, Illinois.
1883. *Spirifera pseudolineata*. Hall, Rep. N. Y. State Geol. for 1882, pl. (36) 61, figs. 28-30.
Keokuk L. S.: Keokuk, Iowa.
1891. *Spirifer pseudolineatus*? Herrick, Bull. Geol. Soc. Am., vol. 2, p. 45, pl. 1, fig. 18.
Upper Waverly Group: Scioto County, Ohio.

Reticularia pseudolineata Hall—Continued.

1894. *Spirifer pseudolineatus*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 25, fig. 15.
Keokuk L. S.: Keokuk, Iowa.
1894. *Spirifer pseudolineata*. Keyes, Mo. Geol. Surv., vol. 5, p. 82.
Keokuk L. S.: St. Francisville, Missouri.
1895. *Spirifer pseudolineatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 36, figs. 28-30.
Keokuk L. S.: Keokuk, Iowa.

Reticularia setigera Hall.

1858. *Spirifer setigerus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 705, pl. 27, figs. 4a, b.
Kaskaskia L. S.: Kaskaskia and Chester, Illinois.
1877. *Spirifer setigera*. Hall and Whittfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 270, pl. 5, figs. 17, 18.
Lower Carboniferous L. S.: North of Snowstorm Hill, Dry Canyon, Oquirrh Mountains, Utah.
1883. *Spirifer setigera*. Hall, Rep. N. Y. State Geol. for 1882, pl. (36) 61, figs. 26, 27.
Chester L. S.: Chester, Illinois.
1894. *Spirifer setigerus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 36, figs. 26, 27.
Chester L. S.: Chester, Illinois.
1894. *Spirifer setigera*. Keyes, Mo. Geol. Surv., vol. 5, p. 83.
Kaskaskia, L. S.: Ste. Mary, Missouri.

Reticularia temeraria Miller.

1881. *Spirifer temeraria*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 314, pl. 7, figs. 9-9b.
Subcarboniferous: Lake Valley mining district, New Mexico.

Reticularia tenuispinata Herrick.

1888. *Spirifer (Martinia) tenuispinatus*. Herrick, Bull. Den. Univ., vol. 4, p. 27, pl. 2, fig. 4.
Waverly Group: Ohio.
1895. *Spirifer tenuispinatus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 15, fig. 4.
Cuyahoga Shales: Moot's Run, Licking County, Ohio.

Reticularia translata Swallow.

1863. *Spirifer translatus*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 85.
Archimedes L. S.: Near Chester, Illinois, and Ste. Mary's, Missouri.

RETZIA King, 1850.

Retzia altirostris. See *Eumetria altirostris*.

Retzia circularis Miller.

1892. *Retzia circularis*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 62, pl. 9, figs. 32-34.
Chouteau L. S.: Sedalia, Missouri.
1894. *Retzia circularis*. Miller, 18th Rep. Geol. Surv. Ind., p. 316, pl. 9, figs. 32-34.
Chouteau L. S.: Sedalia, Missouri.

Retzia compressa. See *Hustedia mormoni*.

Retzia meekana. See *Hustedia meekana*.

Retzia mormoni. See *Hustedia mormoni*.

Retzia osagensis. See *Acambona osagensis*.

Retzia papillata. See *Hustedia papillata*.

Retzia plicata. See *Ptychospira plicata*.

Retzia popeana Swallow.1858. *Retzia* (?) *Popeana*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 654.*Retzia punctilifera*. See *Hustedia mormoni*.*Retzia radialis*. See *Hustedia mormoni*.*Retzia sexplicata*. See *Ptychospira sexplicata*.*Retzia triangularis*. See *Hustedia triangularis*.*Retzia subglobosa*. See *Hustedia mormoni*.*Retzia vera*. See *Eumetria marcyi*.*Retzia vera* var. *costata*. See *Eumetria marcyi*.*Retzia verneuilana*. See *Eumetria marcyi*.*Retzia woosteri*. See *Eumetria woosteri*.**Retzia** (species undetermined).1888. *Retzia* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 2, figs. 12, 13.
Waverly Group: Licking County, Ohio.**RHAPHIDIOPSIS** Scudder, 1893.**Rhaphidiopsis diversipenna** Scudder.1893. *Rhaphidiopsis diversipenna*. Scudder, Bull. U. S. Geol. Surv., No. 101,
p. 11, pl. 1, figs. c, d.

Carboniferous: Locknosett Mine in Cranston, Rhode Island.

RHIPIDOMELLA Ehlert, 1891.**Rhipidomella burlingtonensis** Hall.1858. *Orthis michelini* var. *burlingtonensis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 596,
pl. 12, figs. 4a, b.

Burlington L. S.: Burlington, Iowa; Quincy, Illinois; Hannibal, Missouri.

1874. *Orthis Michelini* var. *Burlingtonensis*? White, Prelim. Rep. Inv. Foss., p. 17.
Subcarboniferous: Below Ophir City, Utah.1892. *Orthis Burlingtonensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 6A,
fig. 13.

Burlington L. S.: Sageville, Illinois.

1892. *Orthis* (*Rhipidomella*) *Burlingtonensis*. Hall and Clarke, Pal. N. Y., vol. 8,
pt. 1, pl. 20, figs. 5, 6.

Burlington L. S. (Chert): Pike County, Missouri.

1894. *Orthis burlingtonensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 63, pl. 38, fig. 7.
Kinderhook Group: Louisiana and Hannibal, Missouri; Burlington, Iowa.
Burlington L. S.: Sedalia, Ash Grove, Springfield, Hannibal, Louisiana,
and Ste. Genevieve, Missouri.**Rhipidomella clarkensis** Swallow.1863. *Orthis Clarkensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 81.
Keokuk L. S.: Iowa and Missouri.**Rhipidomella dalyana** Miller.1881. *Orthis dalyana*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 313, pl. 7,
figs. 8-8b.

Subcarboniferous: Lake Valley Mining District, New Mexico.

Rhipidomella dubia Hall.1856. *Orthis dubia*. Hall, Trans. Albany Inst., vol. 4, p. 12.

St. Louis L. S.: Spergen Hill and Bloomington, Indiana; Alton, Illinois.

Rhipidomella (species undetermined).

1888. *Orthis* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, figs. 21, 22.
Waverly Group: Cuyahoga Falls, Ohio.
1892. *Orthis* sp. † (compare *O. Penelope*.) Hall and Clarke, Pal. N. Y., vol. 8, pt. 1
pl. 6A, fig. 11.
Waverly Group: Granville, Ohio.

RHODOCRINUS Miller, 1821.**Rhodocrinus barrisi** Hall.

1861. *Rhodocrinus barrisi*. Hall, Desc. New Spec. Crin., p. 9.
Burlington, L. S.
1861. *Rhodocrinus barrisi* var. *divergens*. Hall, Desc. New Spec. Crin., p. 9.
Burlington L. S.
1861. *Rhodocrinus Barrisi*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 322.
Burlington L. S.: Burlington, Iowa.
1861. *Rhodocrinus Barrisi* var. *divergens*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7,
p. 324.
Burlington L. S.: Burlington, Iowa.
1872. *Rhodocrinus Barrisi*. Hall, Photo. Plates of Crinoids, pl. 6, figs. 16, 17.
1872. *Rhodocrinus Barrisi* var. *divergens*. Hall, Photo. Plates of Crinoids, pl. 6,
fig. 18.
1897. *Rhodocrinus Barrisi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 230,
pl. 12, figs. 3, 4a-d, 5a, b.
Upper Burlington L. S.: Burlington, Iowa.

Rhodocrinus barrisi var. *divergens*. See *Rhodocrinus barrisi*.**Rhodocrinus barrisi** var. *striatus* Wachsmuth and Springer.

1897. *Rhodocrinus Barrisi* var. *striatus*. Wachsmuth and Springer, N. Am. Crin.
Cam., p. 231, pl. 12, fig. 6.
Upper Burlington L. S.: Burlington, Iowa.

Rhodocrinus benedicti Miller.

1892. *Rhodocrinus benedicti*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p.
15, pl. 2, figs. 18-20.
Keokuk Group: Harrison County, Indiana.
1894. *Rhodocrinus benedicti*. Miller, 18th Rep. Geol. Surv. Ind., p. 269, pl. 2,
figs. 18-20.
Keokuk Group: Harrison County, Indiana.
1897. *Rhodocrinus benedicti*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 224.
Keokuk Group: Harrison County, Indiana.

Rhodocrinus blairi Miller and Gurley.

1896. *Rhodocrinus blairi*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat.
Hist., p. 37, pl. 2, figs. 20-23.
Chouteau L. S.: Sedalia, Missouri.

Rhodocrinus bozemanensis Miller and Gurley.

1897. *Rhodocrinus bozemanensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus.
Nat. Hist., p. 40, pl. 3, fig. 2.
Burlington or Keokuk Group: Bridger Mountains, near Bozeman, Montana.

Rhodocrinus bridgerensis Miller and Gurley.

1897. *Rhodocrinus bridgerensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus.
Nat. Hist., p. 41, pl. 3, fig. 3.
Burlington or Keokuk Group: Bridger Mountains, near Bozeman, Montana.

Rhodocrinus celatus. See *Rhodocrinus nanus*.

Rhodocrinus coxanus Worthen.

1882. *Rhodocrinus coxanus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 29.
Upper part of geode bed, Keokuk Group: 1 mile below Keokuk, Iowa.
1883. *Rhodocrinus Coxanus*. Worthen, Geol. Surv. Ill., vol. 7, p. 305, pl. 28, fig. 7.
Keokuk Group, (upper part of geode bed): 1 mile below Keokuk, Iowa.
1883. *Rhodocrinus polydactylus*. Worthen, Geol. Surv. Ill., vol. 7, p. 305, pl. 27, fig. 5.
Keokuk Group (upper part of geode bed): 1 mile below Keokuk, Iowa.
1894. *Rhodocrinus coranus*. Keyes, Mo. Geol. Surv., vol. 4, p. 163, pl. 22, fig. 3.
Keokuk L. S.: Boonville, Missouri; Keokuk, Iowa.
1897. *Rhodocrinus coxanus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 222, pl. 13, figs. 6, 7.
Keokuk Group, (upper part of geode bed): Hamilton, Illinois.

Rhodocrinus douglassi Miller and Gurley.

1897. *Rhodocrinus douglassi*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 39, pl. 3, fig. 1.
Burlington or Keokuk Group: Bridger Mountains, near Bozeman, Montana.

Rhodocrinus kirbyi Wachsmuth and Springer.

1890. *Rhodocrinus kirbyi*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 180, pl. 15, fig. 10; pl. 16, fig. 3.
Kinderhook Group: Legrand, Iowa.
1897. *Rhodocrinus Kirbyi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 226, pl. 12, figs. 1a-d.
Kinderhook: Legrand, Marshall County, Iowa.

Rhodocrinus nanus Meek and Worthen.

1866. *Rhodocrinus nanus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 254.
Lower Burlington Group: Burlington, Iowa.
1868. *Rhodocrinus nanus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 476, pl. 18, figs. 2a, b.
Burlington Group: Burlington, Iowa.
1890. *Rhodocrinus nanus*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 182, pl. 16, fig. 4; pl. 17, fig. 5.
Kinderhook Group. Legrand and Burlington, Iowa.
1890. *Rhodocrinus sculptus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 359, pl. 7, fig. 11.
Kinderhook Group: Legrand, Iowa.
1890. *Rhodocrinus calatus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 360, pl. 7, fig. 10.
Kinderhook Group: Legrand, Iowa.
1897. *Rhodocrinus nanus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 228, pl. 11, figs. 7a, b; pl. 12, figs. 2a, b.
Kinderhook Group: Legrand, Marshall County, Iowa.

Rhodocrinus parvus Miller.

1891. *Rhodocrinus parvus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 39, pl. 5, figs. 8, 9.
Keokuk Group: Boonville, Missouri.
1897. *Rhodocrinus parvus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 229.
Lower Warsaw L. S.: Boonville, Missouri.

Rhodocrinus polydactylus. See *Rhodocrinus coxanus*.

Rhodocrinus sculptus. See *Rhodocrinus nanus*.

Rhodocrinus truncatus Wachsmuth and Springer.

1897. *Rhodocrinus truncatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 231, pl. 13, figs. 2a-f.
Upper Burlington L. S.: Burlington, Iowa.

Rhipidomella (species undetermined).

1888. *Orthis* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, figs. 21, 22.
Waverly Group: Cuyahoga Falls, Ohio.
1892. *Orthis* sp. † (compare *O. Penelope*.) Hall and Clarke, Pal. N. Y., vol. 8, pt. 1
pl. 6A, fig. 11.
Waverly Group: Granville, Ohio.

RHODOCRINUS Miller, 1821.**Rhodocrinus barrisi Hall.**

1861. *Rhodocrinus barrisi*. Hall, Desc. New Spec. Crin., p. 9.
Burlington, L. S.
1861. *Rhodocrinus barrisi* var. *divergens*. Hall, Desc. New Spec. Crin., p. 9.
Burlington L. S.
1861. *Rhodocrinus Barrisi*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 322.
Burlington L. S.: Burlington, Iowa.
1861. *Rhodocrinus Barrisi* var. *divergens*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7,
p. 324.
Burlington L. S.: Burlington, Iowa.
1872. *Rhodocrinus Barrisi*. Hall, Photo. Plates of Crinoids, pl. 6, figs. 16, 17.
1872. *Rhodocrinus Barrisi* var. *divergens*. Hall, Photo. Plates of Crinoids, pl. 6,
fig. 18.
1897. *Rhodocrinus Barrisi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 230,
pl. 12, figs. 3, 4a-d, 5a, b.
Upper Burlington L. S.: Burlington, Iowa.

Rhodocrinus barrisi* var. *divergens*. See *Rhodocrinus barrisi*.**Rhodocrinus barrisi* var. *striatus* Wachsmuth and Springer.**

1897. *Rhodocrinus Barrisi* var. *striatus*. Wachsmuth and Springer, N. Am. Crin.
Cam., p. 231, pl. 12, fig. 6.
Upper Burlington L. S.: Burlington, Iowa.

***Rhodocrinus benedicti* Miller.**

1892. *Rhodocrinus benedicti*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p.
15, pl. 2, figs. 18-20.
Keokuk Group: Harrison County, Indiana.
1894. *Rhodocrinus benedicti*. Miller, 18th Rep. Geol. Surv. Ind., p. 269, pl. 2,
figs. 18-20.
Keokuk Group: Harrison County, Indiana.
1897. *Rhodocrinus benedicti*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 224.
Keokuk Group: Harrison County, Indiana.

***Rhodocrinus blairi* Miller and Gurley.**

1896. *Rhodocrinus blairi*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat.
Hist., p. 37, pl. 2, figs. 20-23.
Chouteau L. S.: Sedalia, Missouri.

***Rhodocrinus bozemanensis* Miller and Gurley.**

1897. *Rhodocrinus bozemanensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus.
Nat. Hist., p. 40, pl. 3, fig. 2.
Burlington or Keokuk Group: Bridger Mountains, near Bozeman, Montana.

***Rhodocrinus bridgerensis* Miller and Gurley.**

1897. *Rhodocrinus bridgerensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus.
Nat. Hist., p. 41, pl. 3, fig. 3.
Burlington or Keokuk Group: Bridger Mountains, near Bozeman, Montana.

***Rhodocrinus celatus*. See *Rhodocrinus nanus*.**

Rhodocrinus coxanus Worthen.

1882. *Rhodocrinus coxanus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 29.
Upper part of geode bed, Keokuk Group: 1 mile below Keokuk, Iowa.
1883. *Rhodocrinus Coxanus*. Worthen, Geol. Surv. Ill., vol. 7, p. 305, pl. 28, fig. 7.
Keokuk Group, (upper part of geode bed): 1 mile below Keokuk, Iowa.
1883. *Rhodocrinus polydactylus*. Worthen, Geol. Surv. Ill., vol. 7, p. 305, pl. 27, fig. 5.
Keokuk Group (upper part of geode bed): 1 mile below Keokuk, Iowa.
1894. *Rhodocrinus coranus*. Keyes, Mo. Geol. Surv., vol. 4, p. 163, pl. 22, fig. 3.
Keokuk L. S.: Boonville, Missouri; Keokuk, Iowa.
1897. *Rhodocrinus coxanus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 222, pl. 13, figs. 6, 7.
Keokuk Group, (upper part of geode bed): Hamilton, Illinois.

Rhodocrinus douglassi Miller and Gurley.

1897. *Rhodocrinus douglassi*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 39, pl. 3, fig. 1.
Burlington or Keokuk Group: Bridger Mountains, near Bozeman, Montana.

Rhodocrinus kirbyi Wachsmuth and Springer.

1890. *Rhodocrinus kirbyi*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 180, pl. 15, fig. 10; pl. 16, fig. 3.
Kinderhook Group: Legrand, Iowa.
1897. *Rhodocrinus Kirbyi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 226, pl. 12, figs. 1a-d.
Kinderhook: Legrand, Marshall County, Iowa.

Rhodocrinus nanus Meek and Worthen.

1866. *Rhodocrinus nanus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 254.
Lower Burlington Group: Burlington, Iowa.
1868. *Rhodocrinus nanus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 476, pl. 18, figs. 2a, b.
Burlington Group: Burlington, Iowa.
1890. *Rhodocrinus nanus*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 182, pl. 16, fig. 4; pl. 17, fig. 5.
Kinderhook Group: Legrand and Burlington, Iowa.
1890. *Rhodocrinus sculptus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 359, pl. 7, fig. 11.
Kinderhook Group: Legrand, Iowa.
1890. *Rhodocrinus calatus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 360, pl. 7, fig. 10.
Kinderhook Group: Legrand, Iowa.
1897. *Rhodocrinus nanus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 228, pl. 11, figs. 7a, b; pl. 12, figs. 2a, b.
Kinderhook Group: Legrand, Marshall County, Iowa.

Rhodocrinus parvus Miller.

1891. *Rhodocrinus parvus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 39, pl. 5, figs. 8, 9.
Keokuk Group: Boonville, Missouri.
1897. *Rhodocrinus parvus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 229.
Lower Warsaw L. S.: Boonville, Missouri.

Rhodocrinus polydactylus. See *Rhodocrinus coxanus*.**Rhodocrinus sculptus**. See *Rhodocrinus nanus*.**Rhodocrinus truncatus** Wachsmuth and Springer.

1897. *Rhodocrinus truncatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 231, pl. 13, figs. 2a-f.
Upper Burlington L. S.: Burlington, Iowa.

Rhodocrinus tuberculatus Wachsmuth and Springer.

1897. *Rhodocrinus tuberculatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 232, pl. 13, figs. 3, 4.
Lower Burlington L. S.: Lake Valley, New Mexico.

Rhodocrinus varsoviensis Hall.

1860. *Rhodocrinus varsoviensis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 80.
Warsaw L. S.: Warsaw, Illinois.

Rhodocrinus vespertalis White.

1880. *Rhodocrinus vespertalis*. White, Proc. U. S. Nat. Mus., vol. 2, p. 259, pl. 1, figs. 11, 12.
Upper Coal Measures: 30 miles west of Humboldt, Kansas.
1880. *Rhodocrinus vespertalis*. White, Cont. to Inv. Pal., No. 6, p. 129, pl. 35, figs. 4a, b.
Upper Coal Measures: 30 miles west of Humboldt, Kansas.

Rhodocrinus wachsmuthi Hall.

1861. *Rhodocrinus wachsmuthi*. Hall, Desc. New Spec. Crin., p. 18.
Burlington L. S.
1894. *Rhodocrinus wachsmuthi*. Keyes, Mo. Geol. Surv., vol. 4, p. 163.
Lower Burlington L. S.: Louisiana, Missouri.
1897. *Rhodocrinus Wachsmuthi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 222, pl. 13, figs. 5a-d; pl. 15, fig. 7.
Lower Burlington L. S.: Burlington, Iowa.

Rhodocrinus watersianus Wachsmuth and Springer.

1890. *Rhodocrinus watersianus*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 184, pl. 17, fig. 16.
Kinderhook Group: Legrand, Iowa.
1897. *Rhodocrinus watersianus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 221, pl. 12, fig. 9.
Kinderhook Group: Legrand, Marshall County, Iowa.

Rhodocrinus whitei Hall.

1861. *Rhodocrinus whitei*. Hall, Desc. New Spec. Crin., p. 9.
Chemung S. S.: Burlington, Iowa.
1861. *Rhodocrinus whitei* var. *burlingtonensis*. Hall, Desc. New Spec. Crin., p. 9.
Chemung S. S.: Burlington, Iowa.
1861. *Rhodocrinus Whitei*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 324.
Base of Burlington L. S.: Burlington, Iowa.
1861. *Rhodocrinus Whitei* var. *Burlingtonensis*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 325.
Base of Burlington L. S.: Burlington, Iowa.
1872. *Rhodocrinus Whitei*. Hall, Photo. Plates of Crinoids, pl. 6, figs. 19-21.
1894. *Rhodocrinus whitei*. Keyes, Mo. Geol. Surv., vol. 4, p. 163.
Lower Burlington L. S.: Springfield and Louisiana, Missouri.
1897. *Rhodocrinus Whitei*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 223, pl. 13, figs. 1a-c; pl. 15, figs. 6a, b.
Lower Burlington L. S.: Burlington, Iowa.

Rhodocrinus wortheni Hall.

1858. *Rhodocrinus wortheni*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 556, pl. 9, figs. 8a-c.
Burlington L. S.: Burlington, Iowa.
1894. *Rhodocrinus wortheni*. Keyes, Mo. Geol. Surv., vol. 4, p. 162.
Lower Burlington L. S.: Louisiana, Missouri.
1897. *Rhodocrinus Wortheni*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 220, pl. 11, fig. 6; pl. 12, figs. 7a-c.
Lower Burlington L. S.: Burlington, Iowa.

Rhodocrinus wortheni var. **urceolatus** Wachsmuth and Springer.

1897. *Rhodocrinus Wortheni*, var. *urceolatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 221, pl. 12, figs. 8a, b.
Lower Burlington L. S.: Lake Valley, New Mexico.

RHŒCHINUS, Keeping.**Rhœchinus burlingtonensis** Meek and Worthen.

1860. *Palæchinus Burlingtonensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 396.
Burlington L. S.: Burlington, Iowa.
1866. *Palæchinus burlingtonensis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 230, pl. 16, figs. 3a-c.
Burlington L. S.: Burlington, Iowa.
1895. *Palæchinus burlingtonensis*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 180.
Burlington L. S.: Burlington, Iowa.
1896. *Rhœchinus burlingtonensis*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 203.
Burlington L. S.: Burlington, Iowa.

Rhœchinus gracilis Meek and Worthen.

1869. *Palæchinus gracilis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 82.
Upper Burlington L. S.: Burlington, Iowa.
1873. *Palæchinus gracilis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 473, pl. 10, fig. 2.
Burlington L. S.: Burlington, Iowa.
1895. *Palæchinus gracilis*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 180.
Upper Burlington L. S.: Burlington, Iowa.
1896. *Rhœchinus gracilis*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 201, pl. 7, figs. 36, 37.
Waverly Group: Bever Creek, 1 mile above the mouth of Leatherwood Creek, Menifee County Kentucky.
Burlington Group: Burlington, Iowa.

RHOMBOPORA Meek, 1872.**Rhombopora angustata** Ulrich.

1890. *Rhombopora angustata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 652, pl. 70, figs. 6, 6a.
Keokuk Group: King's Mountain, Kentucky.

Rhombopora armata Ulrich.

1884. *Rhombopora armata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 31, pl. 1, figs. 5, 5a.
Kaskaskia Group: Tateville, Kentucky.

Rhombopora? asperula Ulrich.

1890. *Rhombopora? asperula*. Ulrich, Geol. Surv. Ill., vol. 8, p. 656, pl. 70, figs. 9-9e.
Keokuk Group: Keokuk, Iowa; Nauvoo and Warsaw, Illinois.

Rhombopora attenuata Ulrich.

1890. *Rhombopora attenuata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 655, pl. 70, fig. 7.
Keokuk Group: Warsaw, Illinois.
1894. *Rhombopora attenuata*. Keyes, Mo. Geol. Surv., vol. 5, p. 34.
Keokuk L. S.: Warsaw, Illinois.

Rhombopora confluens Ulrich. See *Acanthoclema confluens*.**Rhombopora crassa** Ulrich.

1884. *Rhombopora crassa*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 28, pl. 1, figs. 2-2b.
Upper Coal Measures: Kansas City, Missouri.

Rhombopora crassa Ulrich—Continued.

1894. *Rhombopora crassa*. Keyes, Mo. Geol. Surv., vol. 5, p. 34.
Upper Coal Measures: Kansas City, Missouri.

Rhombopora decipiens Ulrich.

1890. *Rhombopora decipiens*. Ulrich, Geol. Surv. Ill., vol. 8, p. 657, pl. 71, figs. 3-3d.
St. Louis Group: Monroe County, Illinois.

Rhombopora dichotoma Ulrich.

1890. *Rhombopora dichotoma*. Ulrich, Geol. Surv. Ill., vol. 8, p. 650, pl. 70, figs. 13-13b.
Burlington L. S.: Burlington, Iowa.
† Keokuk L. S.: † Warsaw, Illinois.
1894. *Rhombopora dichotoma*. Keyes, Mo. Geol. Surv., vol. 5, p. 33.
Burlington L. S.: Burlington, Iowa; † Hannibal, Missouri.

Rhombopora elegantula Ulrich.

1884. *Rhombopora elegantula*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 33, pl. 1, figs. 3-3b.
† Keokuk Group: King's Mountain, Kentucky.

Rhombopora exigua Ulrich.

1890. *Rhombopora exigua*. Ulrich, Geol. Surv. Ill., vol. 8, p. 651, pl. 70, figs. 10, 10a.
Burlington L. S.: Burlington, Iowa.

Rhombopora gracilis Ulrich.

1890. *Rhombopora gracilis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 651, pl. 70, figs. 11-11b.
Burlington L. S.: Burlington, Iowa.

Rhombopora incrassata Ulrich.

1888. *Rhombopora incrassata*. Ulrich, Bull. Den. Univ., vol. 4, p. 89, pl. 14, figs. 1-13 (16a †).
Cuyahoga Shale: Lodi, Ohio.
Keokuk Group: King's Mountain, Kentucky.
1890. *Rhombopora incrassata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 652, pl. 70, figs. 12-12d.
Keokuk Group: King's Mountain and Buttonmould Knob, Kentucky.

Rhombopora lepidodendroidea Meek.

1866. *Stenopora columnaris* (pars). Geinitz, Carb. und Dyas in Nebr., p. 66.
(Not Schloth, 1813.)
Nebraska City, Bennett's Mill, and Wyoming, Nebraska.
1872. *Rhombopora lepidodendroides*. Meek, U. S. Geol. Surv. Nebr., p. 141, pl. 7, figs. 2a-f.
Upper Coal Measures: Nebraska City, Bennett's Mill, Wyoming, Rock Bluff, and Plattsmouth, Nebraska; Kansas; Iowa; Missouri; Illinois.
1877. *Rhombopora lepidodendroides*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 99, pl. 6, figs. 5a-d.
Carboniferous: West face of Oquirrh range, near "E. T. City," Utah, and at confluence of White Mountain and Black rivers, Arizona.
1884. *Rhombopora lepidodendroidea*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 27, pl. 1, figs. 1-1b.
Upper Coal Measures: Kansas City, Missouri; Nebraska City and Wyoming, Nebraska.
1887. *Rhombopora lepidodendroidea*. Foerste, Bull. Den. Univ., vol. 2, p. 73, pl. 7, figs. 3a, b.
Coal Measures: Flint Ridge and Bald Hill, Ohio.
1887. *Rhombopora* —. Foerste, Bull. Den. Univ., vol. 2, p. 74, pl. 7, figs. 5a-c.
Coal Measures: Flint Ridge, Ohio.

Rhombopora lepidodendroidea Meek—Continued.

1888. *Rhombopora lepidodendroides*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 225.
Lower Coal Measures: Des Moines, Iowa.
1894. *Rhombopora lepidodendroides*. Keyes, Mo. Geol. Surv., vol. 5, p. 35, pl. 33,
figs. 4a, b.
Upper Coal Measures: Kansas City, Missouri.
1897. *Rhombopora lepidendroides*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 27.
Upper Coal Measures: Poteau Mountains, Indian Territory.

Rhombopora minor Ulrich.

1890. *Rhombopora minor*. Ulrich, Geol. Surv. Ill., vol. 8, p. 659, pl. 70, figs. 4, 4a.
Chester Group: Sloan's Valley and Litchfield, Kentucky.

Rhombopora multipora Foerste.

1887. *Rhombopora multipora*. Foerste, Bull. Den. Univ., vol. 2, p. 72, pl. 7,
figs. 1a-c.
Coal Measures: Flint Ridge, Ohio.
1887. *Rhombopora multipora*. Foerste, Bull. Den. Univ., vol. 2, p. 87.
Coal Measures: Seville, Illinois.

Rhombopora nicklesi Ulrich.

1890. *Rhombopora nicklesi*. Ulrich, Geol. Surv. Ill., vol. 8, p. 661, pl. 70, figs. 1-1c.
Lower Coal Measures: Sparta, Illinois.

Rhombopora ohioensis Ulrich.

1888. *Rhombopora ohioensis*. Ulrich, Bull. Den. Univ., vol. 4, p. 90, pl. 14, fig. 15.
Cuyahoga Shale: Richfield and Lodi, Cuyahoga County, and Moot's Run,
Licking County, Ohio.
1885. *Rhombopora ohioensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 19, fig. 9.
Cuyahoga Shale: Ohio.

Rhombopora persimilis Ulrich.

1884. *Rhombopora persimilis*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 30, pl. 1,
figs. 7-7d.
Kaskaskia Group: Chester, Illinois; Tateville, Kentucky.
1890. *Rhombopora persimilis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 659, pl. 70, fig. 3.
Chester Group: Chester, Illinois; Sloan's Valley (Tateville), Kentucky.

Rhombopora pulchella Ulrich.

1884. *Rhombopora pulchella*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 31,
pl. 1, figs. 6, 6a.
Kaskaskia Group: Tateville, Kentucky.

Rhombopora simulatrix Ulrich.

1890. *Rhombopora simulatrix*. Ulrich, Geol. Surv. Ill., vol. 8, p. 657, pl. 71,
figs. 2-2e.
St. Louis Group: Columbia, etc., Monroe County, Illinois.

Rhombopora ? spiralis Ulrich.

1890. *Rhombopora ? spiralis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 656, pl. 71, figs. 5-5d.
Keokuk Group: King's Mountain, Kentucky.

Rhombopora tabulata Ulrich.

1890. *Rhombopora tabulata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 658, pl. 70, figs. 2-2c.
Chester Group: Kaskaskia and Chester, Illinois; Sloan's Valley, Kentucky.
1894. *Rhombopora tabulata*. Keyes, Mo. Geol. Surv., vol. 5, p. 34.
Kaskaskia L. S.: Ste. Genevieve, Missouri.

Rhombopora tenuirama Ulrich.

1890. *Rhombopora tenuirama*. Ulrich, Geol. Surv. Ill., vol. 8, p. 660, pl. 70,
figs. 8-8b.
Chester Group: Kaskaskia, Illinois; Sloan's Valley, Kentucky.

Rhombopora tenuirama Ulrich—Continued.

1894. *Rhombopora tenuirama*. Keyes, Mo. Geol. Surv., vol. 5, p. 34.
Kaskaskia L. S.: Kaskaskia, Illinois.

Rhombopora transversalis Ulrich.

1890. *Rhombopora transversalis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 654, pl. 71, figs. 4-4b.
Keokuk Group: Plymouth, Nauvoo, and Warsaw, Illinois.
1894. *Rhombopora transversalis*. Keyes, Mo. Geol. Surv., vol. 5, p. 34.
Keokuk L. S.: Warsaw, Illinois.

Rhombopora varians Ulrich.

1890. *Rhombopora varians*. Ulrich, Geol. Surv. Ill., vol. 8, p. 653, pl. 71, figs. 1-1b.
Keokuk Group: Near Plymouth, Illinois; near Whitehall, Green County, Illinois; Warsaw and Nauvoo, Illinois.
1894. *Rhombopora varians*. Keyes, Mo. Geol. Surv., vol. 5, p. 33.
Keokuk L. S.: Warsaw, Illinois.

Rhombopora wortheni Ulrich.

1884. *Rhombopora wortheni*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 32, pl. 1, figs. 4-4b.
St. Louis Group: Near Somerset, Kentucky.

RHYNCHONELLA Fischer, 1809.**Rhynchonella acadiensis Davidson.**

1863. *Rhynchonella Acadiensis*. Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 172, pl. 9, fig. 16.
Lower Carboniferous L. S.: Brookfield, Nova Scotia.
1868. *Rhynchonella Acadiensis*. Dawson, Acad. Geol., p. 294, fig. 94.
Carboniferous L. S.: Brookfield, Nova Scotia.

Rhynchonella algeri McChesney.

1860. *Rhynchonella algeri*. McChesney, Desc. New Pal. Foss., p. 51.
Coal Measures: Big Creek, near New Harmony, Indiana.

Rhynchonella angulata. See Enteleutes hemiplicata.**Rhynchonella arctirostrata Swallow.**

1863. *Rhynchonella arctirostrata*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 84.
Archimedes L. S.: Cooper County, Missouri.

Rhynchonella barquensis Winchell.

1862. *Rhynchonella barquensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 408.
Marshall Group: Pointe Aux Barques, Michigan.

Rhynchonella boonensis. See Leiorhynchus boonensis.**Rhynchonella camerifera Winchell.**

1862. *Rhynchonella camerifera*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 408.
Marshall Group: Pointe Aux Barques, Michigan.

Rhynchonella caput-testudinis. See Camarophoria caput-testudinis.**Rhynchonella carbonaria McChesney.**

1860. *Rhynchonella carbonaria*. McChesney, Desc. New Pal. Foss., p. 51.
Upper Coal Measures: Near Farmington, Illinois.

Rhynchonella contracta. See Camarotæchia contracta.**Rhynchonella cooperensis Shumard.**

1855. *Rhynchonella Cooperensis*. Shumard, Geol. Rep. Mo., p. 204, pl. C, figs. 4a-d.
Chouteau L. S.: Vandever's Falls, Cooper County, Missouri.

Rhynchonella cooperensis Shumard—Continued.

1884. *Camarophoria Cooperensis?* Walcott, Pal. Eureka Dist., p. 224, pl. 18, fig. 6.
Lower Carboniferous: Eureka District, Nevada.

1894. *Rhynchonella cooperensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 101.

Chouteau L. S.: Providence, Missouri.

Rhynchonella dawsoniana. See *Pugnax dawsonianus*.

Rhynchonella eatoniaeformis. See *Pugnax rockymontana*.

Rhynchonella endlichi. See *Camarotoechia endlichi*.

Rhynchonella eurekaensis Walcott.

1884. *Rhynchonella Eurekaensis*. Walcott, Pal. Eureka Dist., p. 223, pl. 18, figs. 8-8c.

Lower Carboniferous: Eureka District, Nevada.

Rhynchonella evangelina Hartt.

1868. *Rhynchonella Evangelina*. Hartt, Dawson's Acad. Geol., p. 299.

Carboniferous L. S.: Nova Scotia.

Rhynchonella explanata. See *Camarophoria explanata*.

Rhynchonella greeniana. See *Pugnax greenianus*.

Rhynchonella grosvenori. See *Pugnax grosvenori*.

Rhynchonella guadalupæ Shumard.

1858. *Rhynchonella Guadalupe*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 295.

White Permian L. S.: Guadalupe Mountains.

1859. *Rhynchonella Guadalupe*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 392, pl. 11, figs. 6a-c.

White Permian L. S.: Guadalupe Mountains.

Rhynchonella heteropsis Winchell.

1865. *Rhynchonella heteropsis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 121.

Calcareous bed No. 4, Yellow S. S.: Burlington, Iowa; near Hamburg, Illinois; Weymouth, Ohio.

Rhynchonella hubbardi Winchell.

1862. *Rhynchonella Hubbardi*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 407.

Marshall Group: Marshall and Pointe Aux Barques, Michigan.

1865. *Rhynchonella Hubbardi*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 122.

Marshall Group: Pointe Aux Barques, Napoleon Cut, Jackson County, Michigan; Valley Forge, near Cuyahoga Falls, and Talmadge, Ohio.

Rhynchonella ida Hartt.

1868. *Rhynchonella Ida*. Hartt, Dawson's Acad. Geol., p. 298.

Carboniferous L. S.: Bed A, Windsor, Nova Scotia.

Rhynchonella illinoiensis Worthen.

1884. *Rhynchonella illinoiensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 24.

Coal Measures: Peoria County, Illinois.

1890. *Rhynchonella illinoiensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 104, pl. 11, figs. 3-3c.

Coal Measures: Peoria County, Illinois.

Rhynchonella indentata Shumard.

1859. *Rhynchonella indentata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 393.

White Permian L. S.: Guadalupe Mountains.

Rhynchonella macra Hall.

1856. *Rhynchonella macra*. Hall, Trans. Albany Inst., vol. 4, p. 11.

St. Louis L. S.: Alton, Illinois.

Rhynchonella macra Hall—Continued.

1882. *Rhynchonella macra*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 52, pl. 6, figs. 40-42.

St. Louis Group: Alton, Illinois.

1883. *Rhynchonella macra*. Hall, 12th Rep. Geol. Surv. Ind., p. 334, pl. 29, figs. 40-42.

St. Louis Group: Laneyville, Indiana; Alton, Illinois.

Rhynchonella marshallensis. See *Camarotoechia marshallensis*.

Rhynchonella medialis Simpson.

1889. *Rhynchonella medialis*. Simpson, Trans. Am. Phil. Soc., vol. 15, p. 444, fig. 9.
Waverly Group: Near Warren, Pennsylvania.

Rhynchonella metallica White.

1874. *Rhynchonella metallica*. White, Prelim. Rep. Inv. Foss., p. 20.

Carboniferous (Coal Measures): Old Potosi Mine, Lincoln County, Nevada.

1877. *Rhynchonella metallica*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 129, pl. 10, figs. 10a-d.

Carboniferous: Old Potosi Mine, Lincoln County, Nevada.

Rhynchonella micropleura Winchell.

1885. *Rhynchonella (Retzia?) micropleura*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 122.

Marshall Group: Battle Creek, Michigan.

Rhynchonella missouriensis. See *Pugnax missouriensis* and *Pugnax striaticostata*.

Rhynchonella mutata. See *Pugnax mutata*.

Rhynchonella obsoletus Hall.

1860. *Rhynchonella (Eatonia) obsoletus*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 111.

Goniatite L. S.: Rockford, Indiana.

Rhynchonella opposita White and Whitfield.

1862. *Rhynchonella opposita*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 294.

Chemung Group: Burlington, Iowa.

Rhynchonella osagensis. See *Pugnax uta*.

Rhynchonella ottumwa. See *Pugnax ottumwa*.

Rhynchonella parvini. See *Camarophoria subtrigona*.

Rhynchonella perrostellata Swallow.

1863. *Rhynchonella perrostellata*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 85.

Archimedes L. S.: Cooper County, Missouri.

Rhynchonella persinuata Winchell.

1865. *Rhynchonella persinuata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 121.

Yellow S. S.: Burlington, Iowa.

Rhynchonella pleurodon Phillips.

1878. *Rhynchonella pleurodon*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 632.

Carboniferous: Feilden Isthmus, latitude 82° 43'.

Rhynchonella pugnus. See *Pugnax pugnus*.

Rhynchonella pustulosa. See *Rhynchopora pustulosa*.

Rhynchonella ricinula Hall.

1856. *Rhynchonella ricinula*. Hall, Trans. Albany Inst., vol. 4, p. 9.

St. Louis L. S.: Spergen Hill, Indiana.

1882. *Rhynchonella ricinula*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 53, pl. 6, fig. 46.

St. Louis Group: Spergen Hill, Indiana.

1883. *Rhynchonella ricinula*. Hall, 12th Rep. Geol. Surv. Ind., p. 330, pl. 29, fig. 46.

St. Louis Group: Spergen Hill and Lanesville, Indiana.

Rhynchonella ringens. See *Camarophoria ringens*.

Rhynchonella rockymontana. See *Pugnax rockymontana*.

Rhynchonella sageriana. See *Camarotæchia sagerina*.

Rhynchonella sappho. See *Camarotæchia sappho*.

Rhynchonella striata Simpson.

1889. *Rhynchonella striata*. Simpson, Trans. Am. Phil. Soc., vol. 15, p. 444, fig. 10.

Waverly Group: four miles southeast of Warren, Pennsylvania.

Rhynchonella subcircularis Winchell.

1862. *Rhynchonella subcircularis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 408.

Marshall Group: Pointe Aux Barques, Michigan.

Rhynchonella subcuneata. See *Camarophoria subcuneata*.

Rhynchonella subtrigona. See *Camarophoria subtrigona*.

Rhynchonella tetraptix Winchell.

1865. *Rhynchonella? tetraptix*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 120.

Marshall Group: Rockford, Indiana.

Rhynchonella texana Shumard.

1859. *Rhynchonella Texana*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 393.

Dark Permian L. S.: Guadalupe Mountains.

Rhynchonella thera. See *Camarophoria thera*.

Rhynchonella tuta Miller.

1881. *Rhynchonella tuta*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 315, pl. 7, figs. 11-11b.

Subcarboniferous: Lake Valley Mining District, New Mexico.

Rhynchonella unica Winchell.

1865. *Rhynchonella unica*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 122.

Bed No. 4: Burlington, Iowa.

Rhynchonella uta. See *Pugnax uta*.

Rhynchonella wasatchensis. See *Seminula wasatchensis*.

Rhynchonella whitei.

1862. *Rhynchonella Whitei*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 407.

Marshall Group: Marshall, Michigan.

Rhynchonella wortheni. See *Camarophoria wortheni*.

Rhynchonella (species undetermined).

1859. *Rhynchonella* sp. (†) Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 393.

White Permian L. S.: Guadalupe Mountains.

1863. *Rhynchonella* sp. Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 173, pl. 9, fig. 17.

Lower Carboniferous L. S.: Nova Scotia.

Rhynchonella (species undetermined)—Continued.

1864. *Rhynchonella* (sp. undt.). Meek, Pal. Cal., vol. 1, p. 12.
Carboniferous: Bass's Ranch, Shasta County, California.
1868. *Rhynchonella* sp. Dawson, Acad. Geol., p. 295.
Lower Carboniferous L. S.: Nova Scotia.
1877. *Rhynchonella* (n. sp.)? Whiteaves, Geol. Surv. Canada, Rep. of Prog., 1875-76, p. 100.
Devonian or Carboniferous: Fossil Point, Peace River, Canada.
1888. *Rhynchonella* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 5, fig. 18; pl. 7, fig. 9; pl. 12, fig. 12.
Waverly Group: Licking County, Ohio.
1888. *Rhynchonella* sp. Herrick, Bull. Den. Univ., vol. 4, p. 23, pl. 11, fig. 22.
(*R. marshallensis*? in Expl. of Plate.)
Waverly Group: Lodi, Ohio.
1888. *Rhynchonella* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 39.
Waverly Group: Cuyahoga Falls, Ohio.
1895. *Rhynchonella* sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 21, fig. 18.
Waverly Group: Ohio.
1895. *Camarotoechia* sp.? Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 57, figs. 51-53.
Burlington L. S.: Burlington, Iowa.
1895. *Camarotoechia* sp. indet. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 57, fig. 54.
Waverly Group: Ohio.
1897. *Rhynchonella* sp. indet. Smith, Proc. Am. Phil. Soc., vol. 35, p. 30.
Lower Coal Measures: White and Crawford counties, Arkansas.

RHYNCHOPORA King, 1856.**Rhynchopora pustulosa White.**

- *1860. *Rhynchonella pustulosa*. White, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 236.
Burlington L. S.: Burlington, Iowa.
1877. *Rhynchonella pustulosa*? Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 257, pl. 4, figs. 12-14.
Waverly Group: Logan Canyon, Wahsatch range, Utah.
1894. *Rhynchopora pustulosa*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 44, figs. 26-29.
Burlington L. S.: Burlington, Iowa.
1895. *Rhynchopora pustulosa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 58, figs. 1-4.
Burlington L. S.: Burlington, Iowa.

RHYNCHOSPIRA Hall, 1859.**Rhynchospira ashlandensis Herrick.**

1888. *Rhynchospira* (?) *ashlandensis*. Herrick, Bull. Den. Univ., vol. 4, p. 25, pl. 3, fig. 16.
Waverly Group: Lyon Falls, Ashland County, Ohio.
1895. *Rhynchospira* (?) *ashlandensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 16.
Cuyahoga Shale: Lyon Falls, Ohio.

Rhynchospira scansa Hall and Clarke.

1895. *Rhynchospira scansa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 30, fig. 45.
Waverly Group: McKean County, Pennsylvania.
1897. *Rhynchospira scansa*. Hall, 14th Rep. N. Y. State Geol., p. 360, pl. 9, fig. 2.
Waverly Group: McKean County, Pennsylvania.

Rhynchospira (species undetermined.)

1895. *Rhynchospira* (?) sp. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 50, fig. 44.
Waverly Group: Northwestern Pennsylvania.

ROMINGERINA Hall, 1893.**Romingerina julia Winchell.**

1862. *Centronella Julia*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 405.
Marshall Group: Pointe Aux Barques, Michigan.
1865. *Centronella Julia*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 123.
Marshall Group: 1 mile west of Orange Center, Cuyahoga County, Ohio.
1867. *Centronella julia*. Hall, Pal. N. Y., vol. 4, p. 419, pl. 61A, figs. 41-46.
Marshall S. S.: Pointe Aux Barques, Michigan.
1888. *Centronella julia*. Herrick, Bull. Den. Univ., vol. 3, p. 49, pl. 2, fig. 5.
Waverly Group: Licking County, Ohio.
1894. *Romingerina Julia*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 52,
figs. 14, 15.
Marshall Group: Pointe Aux Barques, Michigan.
1895. *Romingerina Julia*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 79,
figs. 28-30.
Marshall Group: Pointe Aux Barques, Michigan.

(ROTALIA Lamark, 1804.)***Rotalia baileyi* Hall. See *Endothyra baileyi*.****ROTELLA Lamark, 1822.*****Rotella verruculifera* White.**

1881. *Rotella verruculifera*. White, U. S. Geog. Surv. W. 100 Merid., vol. 3, Supp.,
Appendix, p. xxxii, pl. 4, figs. 7a-d.
Carboniferous: Near Taos, New Mexico.

RUSICHNITES Dawson, 1861.***Rusichnites acadicus* Dawson.**

1868. *Rusichnites Acadicus*. Dawson, Acad. Geol., p. 410, fig. 157.
Coal Measures: Cape Breton.

***Rusichnites carbonarius* Dawson.**

1868. *Rusichnites carbonarius*. Dawson, Acad. Geol., p. 257, fig. 80.
Carboniferous: Nova Scotia.

SAMPSONOCRINUS Miller and Gurley, 1895.***Sampsonocrinus hemisphericus* Miller and Gurley.**

1895. *Sampsonocrinus hemisphericus*. Miller and Gurley, Bull. No. 7, Ill. State
Mus. Nat. Hist., p. 51, pl. 3, figs. 7-10.
Chouteau L. S.: Sedalia, Missouri.

SANGUINOLARIA Lamark, 1801.***Sanguinolaria leptogaster* Winchell.**

1863. *Sanguinolaria ? leptogaster*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 18.
Yellow S. S.: Burlington, Iowa.

***Sanguinolaria rostrata* Winchell.**

1865. *Sanguinolaria rostrata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 129.
Marshall Group: Battle Creek, Michigan.

Sanguinolaria sectoralis Winchell.

1862. *Sanguinolaria sectoralis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 422.
Marshall Group: Marshall, Michigan.

Sanguinolaria septentrionalis Winchell.

1862. *Sanguinolaria septentrionalis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 421.
Marshall Group: Gaines, Kent County, Michigan.

Sanguinolaria similis Winchell.

1862. *Sanguinolaria similis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 421.
Marshall Group: Marshall, Michigan.
1865. *Sanguinolaria similis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 130.
Marshall Group: Napoleon Cut, Jackson County, Michigan.

Sanguinolaria (species undetermined.)

1852. *Sanguinolaria*. Owen, Geol. Rep. Wis., Iowa, and Minn., Tab. 3A, fig. 18.
Base of Carboniferous L. S.: Burlington, Iowa.

SANGUINOLITES McCoy, 1844.**Sanguinolites æolus**. See *Sphenotus æolus*.**Sanguinolites amygdalinus**. See *Glossites amygdalinus*.**Sanguinolites borealis** Winchell.

1862. *Sanguinolites borealis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 415.
Marshall Group: Pointe Aux Barques and Moscow, Michigan.

Sanguinolites brookfieldianus Dawson.

1883. *Sanguinolites Brookfieldianus*. Dawson, Rep. Peter Redpath Mus., No. 2,
p. 11.
Lower Carboniferous L. S.: Brookfield and Windsor, Nova Scotia.

Sanguinolites burlingtonensis Worthen.

1884. *Sanguinolites? burlingtonensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat.
Hist., p. 14.
Burlington L. S.: Calhoun County, Illinois.
1890. *Sanguinolites? burlingtonensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 129,
pl. 20, figs. 8, 8a.
Burlington L. S.: Calhoun County, Illinois.

Sanguinolites concentricus Winchell.

1862. *Cardinia concentrica*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 413.
Marshall Group: Jonesville, Hillsdale County, Michigan.
1865. *Sanguinolites concentrica*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 128.
Marshall Group: Hillsdale, Michigan.

Sanguinolites contractus. See *Sphenotus contractus*.**Sanguinolites cylindricus** Winchell.

1863. *Sanguinolites cylindricus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 13.
Yellow S. S.: Burlington, Iowa.

Sanguinolites flavius. See *Sphenotus flavius*.**Sanguinolites hannibalensis**. See *Grammysia hannibalensis*.**Sanguinolites iowensis** Winchell.

1863. *Sanguinolites Iowensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 14.
Yellow S. S.: Burlington, Iowa.

Sanguinolites jejunos Winchell.

1863. *Sanguinolites (?) jejunos*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 15.
Yellow S. S.: Burlington, Iowa.

Sanguinolites marshallensis. See *Palæoneilo marshallensis*.

Sanguinolites michiganensis.

1888. *Sanguinolites michiganensis*. Herrick, Bull. Den. Univ., vol. 3, p. 70, pl. 8, fig. 10.

Waverly Group: Licking County, Ohio.

Sanguinolites missouriensis. See *Promacrus missouriensis*.

Sanguinolites multistriatus Worthen.

1884. *Sanguinolites? multistriatus*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 11.

Keokuk Shale: Near Crawfordsville, Indiana.

1890. *Sanguinolites? multistriatus*. Worthen, Geol. Surv. Ill., vol. 8, p. 129, pl. 19, fig. 2.

Keokuk Shale: Near Crawfordsville, Indiana.

Sanguinolites nænia Walcott.

1884. *Sanguinolites? Nænia*. Walcott, Pal. Eureka Dist., p. 249, pl. 19, fig. 9.

Lower Carboniferous: Eureka District, Nevada.

Sanguinolites naiadiformis Winchell.

1870. *Sanguinolites naiadiformis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 255.

Marshall Group: Hillsdale, Michigan.

Waverly Group: Newark and Granville, Ohio.

1888. *Sanguinolites naiadiformis*. Herrick, Bull. Den. Univ., vol. 3, p. 71, pl. 4, fig. 2; pl. 9, fig. 3; pl. 10, fig. 2.

Waverly Group: Licking County, Ohio.

1888. *Sanguinolites naiadiformis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 18.

Middle Waverly Group: Granville, Ohio.

Sanguinolites nasutus. See *Pomacrus nasutus*.

Sanguinolites nobilis De Koninck.

1885. *Sanguinolites nobilis*. De Koninck, Fauna du Calc. Carb. de la Belg., pt. 5, p. 81, pl. 16, fig. 7.

1888. *Allorisma (Sanguinolites) nobilis*. Herrick, Bull. Den. Univ., vol. 3, p. 71, pl. 10, fig. 5.

Waverly Group: Licking County, Ohio.

1888. *Allorisma nobilis*. Herrick, Bull. Den. Univ., vol. 4, p. 28.

Waverly Group: Ohio.

1895. *Allorisma nobilis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 20.

Middle Waverly Group: Licking County, Ohio.

Sanguinolites obliquus Meek.

1871. *Sanguinolites? obliquus*. Meek, Proc. Acad. Nat. Sci. Phil., p. 69.

Upper Waverly Group: Rushville and Newark, Ohio.

1875. *Sanguinolites? obliquus*. Meek, Pal. Ohio, vol. 2, p. 306, pl. 16, figs. 2a, b.

Upper Waverly Group: Rushville and Newark, Ohio.

1888. *Sanguinolites obliquus*. Herrick, Bull. Den. Univ., vol. 3, p. 70.

Sanguinolites plicata. See *Goniophora plicata*.

Sanguinolites randolphensis Worthen.

1883. *Cypriocardia? Randolphensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 326.

Chester L. S.: Randolph County, Illinois.

1890. *Sanguinolites randolphensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 130, pl. 20, figs. 1, 1a.

Chester L. S.: Chester, Illinois.

Sanguinolites retusus Walcott.

1884. *Sanguinolites retusus*. Walcott, Pal. Eureka Dist., p. 247, pl. 20, fig. 10.

Lower Carboniferous: Eureka District, Nevada.

Sanguinolites salteri Walcott.

1884. *Sanguinolites Salteri*. Walcott, Pal. Eureka Dist., p. 248, pl. 20, fig. 12.
Lower Carboniferous: Eureka District, Nevada.

Sanguinolites securis Winchell.

1870. *Sanguinolites (Cypricardia?) securis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 255.
Waverly Group: Newark, Ohio.

Sanguinolites senilis Herrick.

1888. *Sanguinolites (Goniophora) senilis*. Herrick, Bull. Den. Univ., vol. 3, p. 66, pl. 9, fig. 28.
Waverly Group: Licking County, Ohio.

Sanguinolites simplex Walcott.

1884. *Sanguinolites simplex*. Walcott, Pal. Eureka Dist., p. 248, pl. 20, fig. 11.
Lower Carboniferous: Eureka District, Nevada.

Sanguinolites striatus Walcott.

1884. *Sanguinolites striatus*. Walcott, Pal. Eureka Dist., p. 249, pl. 23, fig. 7.
Lower Carboniferous: Eureka District, Nevada.

Sanguinolites strigatus Winchell.

1865. *Sanguinolites strigatus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 127.
Marshall Group: Pointe Aux Barques, Huron County, Michigan.

Sanguinolites sulciferus. See *Cypricardinia sulcifera*.**Sanguinolites transversus** De Koninck.

1888. *Sanguinolites (Sphenotus) transversus*. Herrick, Bull. Den. Univ., vol. 3, p. 68, pl. 9, fig. 22.
Waverly Group: Licking County, Ohio.

Sanguinolites unioniformis Winchell.

1862. *Sanguinolites unioniformis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 414.
Marshall Group: Moscow, Michigan.
1888. *Sanguinolites unioniformis*. Herrick, Bull. Den. Univ., vol. 3, p. 67, pl. 9, figs. 5, 7-9, 24.
Waverly Group: Licking County, Ohio.

Sanguinolites valvulus. See *Sphenotus valvulus*.**Sanguinolites** (species undetermined).

1897. *Sanguinolites?* sp.? Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 268, pl. 20, fig. 6.
Batesville S. S.: Batesville, Arkansas.

SCAPHIOCRINUS Hall, 1858.**Scaphiocrinus abnormis**. See *Scytalocrinus abnormis*.**Scaphiocrinus ægina**. See *Decadocrinus ægina*.**Scaphiocrinus æqualis** Hall.

1860. *Poteriocrinus æqualis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 63.
Burlington L. S.: Burlington, Iowa.
1861. *Poteriocrinus (Scaphiocrinus) solidus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 140.
Burlington L. S.: Burlington, Iowa.
1865. *Poteriocrinus (Scaphiocrinus) tenuidactylus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 156.
Burlington L. S.: Burlington, Iowa.

Scaphiocrinus æqualis Hall—Continued.

1868. *Poteriocrinus (Scaphiocrinus) tenuidactylus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 490, pl. 18, fig. 10.

Burlington Group: Burlington, Iowa.

See also *Woodocrinus æqualis*.

Scaphiocrinus arrosus Miller and Gurley.

1894. *Scaphiocrinus arrosus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 39, pl. 6, fig. 5.

Keokuk Group: Washington County, Indiana.

Scaphiocrinus bayensis. See *Decadocrinus bayensis*.

Scaphiocrinus bellus Miller and Gurley.

1890. *Scaphiocrinus bellus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 363, pl. 8, figs. 5-7.

Keokuk Group: Bono, Indiana.

Scaphiocrinus bonoensis Miller and Gurley.

1890. *Scaphiocrinus bonoensis*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 349, pl. 5, figs. 6, 7.

Keokuk Group: Bono, Indiana.

Scaphiocrinus boonvillensis Miller.

1891. *Scaphiocrinus Boonvillensis*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 37, pl. 5, figs. 1, 2.

Keokuk Group: Boonville, Missouri.

1894. *Scaphiocrinus ? boonvillensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 212.

Keokuk L. S.: Boonville, Missouri.

Scaphiocrinus briærius Worthen.

1882. *Poteriocrinus briærius*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 12.

Upper part of geodiferous shales of Keokuk Group: 1 mile below Keokuk, Iowa.

1883. *Poteriocrinus briærius*. Worthen, Geol. Surv. Ill., vol. 7, p. 279, pl. 27, fig. 4.

Keokuk Group (upper part of geode bed): 1 mile below Keokuk, Iowa.

Scaphiocrinus burketi Worthen.

1882. *Poteriocrinus burketi*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 5.

Top of Keokuk L. S.: Hamilton, Illinois.

1883. *Poteriocrinus burketi*. Worthen, Geol. Surv. Ill., vol. 7, p. 270, pl. 28, fig. 8.

Keokuk, L. S.: Hamilton, Illinois.

Scaphiocrinus calyculus. See *Poteriocrinus calyculus*.

Scaphiocrinus carbonarius. See *Graphiocrinus carbonarius* and *Cerriocrinus inflexus*.

Scaphiocrinus carinatus Hall.

1861. *Scaphiocrinus carinatus*. Hall, Desc. New Spec. Crin., p. 8.

Burlington L. S.

1861. *Scaphiocrinus carinatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 310.

Burlington L. S.: Burlington, Iowa.

1893. *Poteriocrinus (Scaphiocrinus) carinatus*. Whitfield, Mem. Am. Nat. Hist., vol. 1, p. 31, pl. 3, figs. 13, 14.

Burlington L. S.: Burlington, Iowa.

Scaphiocrinus clio Meek and Worthen.

1869. *Scaphiocrinus Clio*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 144.

Upper Burlington L. S.: Burlington, Iowa.

Scaphiocrinus granuliferus Miller and Gurley.

1890. *Scaphiocrinus granuliferus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 367, pl. 10, fig. 3.

Keokuk Group: Crawfordsville, Indiana.

Scaphiocrinus graphicus Miller and Gurley.

1890. *Scaphiocrinus graphicus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 366, pl. 10, fig. 4.

Keokuk Group: Crawfordsville, Indiana.

Scaphiocrinus gurleyi White.

1878. *Scaphiocrinus Gurleyi*. White, Proc. Acad. Nat. Sci. Phil., p. 32.

Keokuk Group: Crawfordsville, Indiana.

1880. *Scaphiocrinus gurleyi*. White, Cont. to Inv. Pal., No. 8, p. 162, pl. 40, fig. 3a.

Keokuk Group: Crawfordsville, Indiana.

1881. *Scaphiocrinus gurleyi*. White, 2d Ann. Rep. Dep. Stat. and Geol. Ind., p. 509, pl. 7, fig. 8.

Keokuk Group: Crawfordsville, Indiana.

Scaphiocrinus halli. See *Decadocrinus halli*.

Scaphiocrinus hemisphericus. See *Ceriocrinus hemisphericus*.

Scaphiocrinus hoveyi. See *Barycrinus hoveyi*.

Scaphiocrinus huntsvillæ Worthen.

1873. *Scaphiocrinus Huntsvillæ*. Worthen, Geol. Surv. Ill., vol. 5, p. 534, pl. 20, fig. 1.

St. Louis L. S.†: Near Huntsville, Alabama.

Scaphiocrinus internodius Hall.

1858. *Scaphiocrinus internodius*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 679, pl. 25, fig. 2.

Kaskaskia L. S.: Chester, Illinois.

1882. *Scaphiocrinus internodius*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 17 (footnote).

St. Louis L. S. (Not Chester, as reported by Hall.)

Scaphiocrinus iowensis Worthen.

1882. *Poteriocrinus iowensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 6. Upper shales of geode bed, Keokuk Group: 1 mile below Keokuk, Iowa.

1883. *Poteriocrinus iowensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 272.

Keokuk Group (upper shales of geode bed): 1 mile below Keokuk, Iowa.

Scaphiocrinus juvenis. See *Decadocrinus juvenis*.

Scaphiocrinus kaskaskiensis Worthen.

1882. *Poteriocrinus kaskaskiensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 27.

Chester L. S.: Bluffs of Kaskaskia River, 4 miles above Chester, Illinois.

1883. *Poteriocrinus kaskaskiensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 300, pl. 29, fig. 15.

Chester L. S.: Bluffs of Kaskaskia River, 4 miles above Chester, Illinois.

Scaphiocrinus keokuk Hall.

1860. *Poteriocrinus keokuk*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 64.

Keokuk L. S.: Keokuk, Iowa.

Scaphiocrinus lacunosus Miller and Gurley.

1890. *Scaphiocrinus lacunosus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 363, pl. 8, figs. 8-10.

Keokuk Group: Bono, Indiana.

Scaphiocrinus latidactylus Worthen.

1882. *Poteriocrinus latidactylus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 8.

Upper Keokuk L. S.: Hamilton, Illinois.

1883. *Poteriocrinus latidactylus*. Worthen, Geol. Surv. Ill., vol. 7, p. 275, pl. 28, fig. 6.

Keokuk L. S.: Hamilton, Illinois.

Scaphiocrinus longidactylus. See *Scytalocrinus decabrachiatus*.

Scaphiocrinus lyoni Miller.

1892. *Scaphiocrinus lyoni*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 45, pl. 5, fig. 25.

Keokuk Group: Three miles east of Crawfordsville, Indiana.

1894. *Scaphiocrinus lyoni*. Miller, 18th Rep. Geol. Surv. Ind., p. 299, pl. 5, fig. 25.

Keokuk Group: Three miles east of Crawfordsville, Indiana.

Scaphiocrinus lyriope. See *Decadocrinus lyriope*.

Scaphiocrinus macadamsi. See *Graphiocrinus macadamsi*.

Scaphiocrinus macrodactylus. See *Scytalocrinus macrodactylus*.

Scaphiocrinus maniformis Miller.

1892. *Scaphiocrinus maniformis*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 46, pl. 5, fig. 26.

Keokuk Group: Washington County, Indiana.

1894. *Scaphiocrinus maniformis*. Miller, 18th Rep. Geol. Surv. Ind., p. 300, pl. 5, fig. 26.

Keokuk Group: Washington County, Indiana.

Scaphiocrinus manus Miller and Gurley.

1890. *Scaphiocrinus manus*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 24, pl. 4, fig. 13.

Keokuk Group: Crawfordsville, Indiana.

1890. *Scaphiocrinus manus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 345, pl. 4, fig. 13.

Keokuk Group: Crawfordsville, Indiana.

Scaphiocrinus martinensis Miller and Gurley.

1894. *Scaphiocrinus martinensis*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 38, pl. 4, fig. 9.

Kaskaskia Group: Martin County, Indiana.

Scaphiocrinus missouriensis Shumard.

1855. *Poteriocrinus longidactylus*. Shumard, Geol. Rep. Mo., p. 188, pl. B, figs. 5a-c. (Not *S. longidactylus* Austin, 1843.)

Upper St. Louis L. S.: St. Louis County, Missouri.

*1857. *Poteriocrinus missouriensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 80.

1858. *Poteriocrinus missouriensis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 669, pl. 17, figs. 7a, b.

St. Louis L. S.: Near St. Louis, Missouri.

1894. *Scaphiocrinus missouriensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 211, pl. 26, fig. 2.

St. Louis L. S.: St. Louis, Missouri.

Scaphiocrinus montanænsis Meek.

1873. *Poteriocrinites Montanaensis*. Meek, U. S. Geol. Surv. Mont., Idaho, Wyo., and Utah, p. 469.

Carboniferous: "Old Baldy," near Virginia City, Montana

Scaphiocrinus montanensis Meek—Continued.

1880. *Poteriocrinus montanensis*. White, Cont. to Inv. Pal., No. 6, p. 128, pl. 33, fig. 6a.

Carboniferous: "Old Baldy" Mountain, near Virginia City, Montana.

Scaphiocrinus nanus Meek and Worthen.

1869. *Scaphiocrinus nanus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 141. Lower Burlington L. S.: Burlington, Iowa.

1873. *Scaphiocrinus nanus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 423, pl. 1, fig. 8.

Burlington, L. S.: Burlington, Iowa.

Scaphiocrinus nauvoensis Worthen.

1882. *Poteriocrinus nauvoensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 13.

Keokuk L. S.: Nauvoo, Illinois.

1883. *Poteriocrinus Nauvoensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 282, pl. 28, fig. 10.

Keokuk L. S.: Nauvoo, Illinois.

Scaphiocrinus nodobrachiatus Hall.

1861. *Scaphiocrinus nodobrachiatus*. Hall, Desc. New Spec. Crin., p. 8. Keokuk L. S.

1861. *Scaphiocrinus nodobrachiatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 314. Keokuk, L. S.: Crawfordville, Indiana.

1872. *Scaphiocrinus nodobrachiatus*. Hall, Photo. Plates of Crinoids, pl. 6, fig. 2.

Scaphiocrinus norwoodi Meek and Worthen.

1865. *Poteriocrinus (Scaphiocrinus) ? Norwoodi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 158.

St. Louis Group: Hancock County, Illinois.

Scaphiocrinus notabilis. See Poteriocrinus notabilis.**Scaphiocrinus notatus Miller and Gurley.**

1896. *Scaphiocrinus notatus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 34, pl. 2, figs. 25, 26.

Kinderhook Group: Legrand, Iowa.

Scaphiocrinus obscurus Wachsmuth and Springer.

1882. *Poteriocrinus tenuidactylus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 6. (Not *S. tenuidactylus* M. & W 1865.)

Upper part of geode bed, Keokuk Group: 1 mile below Keokuk, Iowa.

1883. *Poteriocrinus tenuidactylus*. Worthen, Geol. Surv. Ill., vol. 7, p. 271, pl. 28, fig. 13.

Keokuk Group (geode bed): 1 mile below Keokuk, Iowa.

1886. *Scaphiocrinus obscurus*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 160. (Rev. Palæocr. III, p. 236.)

Scaphiocrinus occidentalis Worthen.

1882. *Poteriocrinus occidentalis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 10.

Upper Keokuk L. S.: Hamilton, Illinois.

1883. *Poteriocrinus occidentalis*. Worthen, Geol. Surv. Ill., vol. 7, p. 278, pl. 27, fig. 2.

Keokuk L. S.: Hamilton, Illinois.

Scaphiocrinus okawensis Worthen.

1882. *Poteriocrinus okawensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 24.

Chester L. S.: Bluffs of Okaw River, above Chester, Illinois.

1883. *Poteriocrinus Okawensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 296, pl. 29, fig. 2.

Chester L. S.: Bluffs of Okaw River, above Chester, Illinois.

Scaphiocrinus orbicularis. See *Eupachycrinus orbicularis*.

Scaphiocrinus orestes Worthen.

1882. *Poteriocrinus orestes*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 7.
Top of geodiferous shales of Keokuk Group: 1 mile below Keokuk, Iowa.
1883. *Poteriocrinus Orestes*. Worthen, Geol. Surv. Ill., vol. 7, p. 273, pl. 27, fig. 3.
Keokuk Group (top of geode bed): 1 mile below Keokuk, Iowa.

Scaphiocrinus penicillus Meek and Worthen.

1869. *Scaphiocrinus penicillus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 142.
Upper Burlington L. S.: Burlington, Iowa.
1873. *Scaphiocrinus penicillus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 414, pl. 2, fig. 7.
Burlington L. S.: Burlington, Iowa.

Scaphiocrinus pikensis Worthen.

1882. *Zeacrinus pikensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 29.
Lower Burlington L. S.: Montezuma, Pike County, Illinois.
1883. *Zeacrinus Pikensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 304, pl. 30, fig. 3.
Burlington L. S.: Montezuma, Pike County, Illinois.

Scaphiocrinus popensis Worthen.

1882. *Poteriocrinus popensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 23.
Chester L. S.: Pope County, Illinois.
1883. *Poteriocrinus Popensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 296, pl. 29, fig. 12.
Chester L. S.: Pope County, Illinois.

Scaphiocrinus porrectus Miller.

1891. *Scaphiocrinus porrectus*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 42, pl. 7, fig. 2.
Keokuk Group: Crawfordsville, Indiana.
1892. *Scaphiocrinus porrectus*. Miller, 17th Rep. Geol. Surv. Ind., p. 652, pl. 7, fig. 2.
Keokuk Group: Crawfordsville, Indiana.

Scaphiocrinus præmorsus Miller and Gurley.

1890. *Scaphiocrinus præmorsus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 364, pl. 8, fig. 11.
Keokuk Group: Washington County, Indiana.

Scaphiocrinus proboscidiæ Worthen.

1875. *Poteriocrinus proboscidiæ*. Worthen, Geol. Surv. Ill., vol. 6, p. 518, pl. 31, fig. 1.
St. Louis L. S.: Carondelet, Missouri.
1894. *Scaphiocrinus proboscidiæ*. Keyes, Mo. Geol. Surv., vol. 4, p. 212.
St. Louis L. S.: Carondelet, Missouri.

Scaphiocrinus propinquus Worthen.

1882. *Poteriocrinus propinquus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 26.
Chester L. S.: Monroe County, Illinois.
1883. *Poteriocrinus propinquus*. Worthen, Geol. Surv. Ill., vol. 7, p. 299, pl. 29, fig. 9.
Chester L. S.: Monroe County, Illinois.

Scaphiocrinus ramulosus Hall.

1861. *Scaphiocrinus ramulosus*. Hall, Desc. New Spec. Crin., p. 7.
Burlington L. S.
1861. *Scaphiocrinus ramulosus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 307.
Burlington L. S.: Burlington, Iowa.

Scaphiocrinus randolphensis Worthen.

1873. *Scaphiocrinus Randolphensis*. Worthen, Geol. Surv. Ill., vol. 5, p. 551, pl. 21, fig. 14.

Chester Group: Chester, Illinois.

Scaphiocrinus repertus Miller and Gurley.

1890. *Scaphiocrinus repertus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 362, pl. 8, figs. 1, 2.

Keokuk Group: Bono, Indiana.

Scaphiocrinus robustus. See *Scytalocrinus robustus*.**Scaphiocrinus rudis**. See *Graphiocrinus rudis*.**Scaphiocrinus rusticellus** White.

1862. *Scaphiocrinus rusticellus*. White, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 505. Burlington L. S.: Burlington, Iowa.

1894. *Scaphiocrinus rusticellus*. Keyes, Mo. Geol. Surv., vol. 4, p. 212, pl. 26, fig. 1. Lower Burlington L. S.: Hannibal, Missouri; Burlington, Iowa.

Scaphiocrinus salteri Worthen.

1882. *Poteriocrinus salteri*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 21. Chester L. S.: Chester, Illinois.

1883. *Poteriocrinus Salleri*. Worthen, Geol. Surv. Ill., vol. 7, p. 291, pl. 29, fig. 18. Chester L. S.: Chester, Illinois.

Scaphiocrinus sampsoni Miller.

1891. *Scaphiocrinus sampsoni*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 46, pl. 9, fig. 12.

Chouteau L. S.: Pettis County, Missouri.

1892. *Scaphiocrinus sampsoni*. Miller, 17th Rep. Geol. Surv. Ind., p. 656, pl. 9, fig. 12.

Chouteau L. S.: Pettis County, Missouri.

1894. *Scaphiocrinus? sampsoni*. Keyes, Mo. Geol. Surv., vol. 4, p. 213

Chouteau L. S.: Sedalia, Missouri.

Scaphiocrinus scalaris. See *Decadocrinus scalaris*.**Scaphiocrinus scoparius** Hall.

1858. *Scaphiocrinus scoparius*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 680, pl. 25, figs. 3a, b.

Kaskaskia L. S.: Chester, Illinois.

1882. *Scaphiocrinus scoparius*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 17 (footnote).

St. Louis L. S. (not Chester as reported by Hall).

1894. *Scaphiocrinus scoparius*. Keyes, Mo. Geol. Surv., vol. 4, p. 212.

Kaskaskia L. S.: Chester, Illinois.

Scaphiocrinus sculptus Worthen.

1882. *Poteriocrinus sculptus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 21. Chester L. S.: Monroe County, Illinois.

1883. *Poteriocrinus sculptus*. Worthen, Geol. Surv. Ill., vol. 7, p. 292, pl. 29, fig. 8. Chester L. S.: Monroe County, Illinois.

Scaphiocrinus simplex. See *Graphiocrinus simplex*.**Scaphiocrinus spinifer** Wetherby.

1880. *Scaphiocrinus spinifer*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 3, p. 157, pl. 5, fig. 3.

Kaskaskia Group: Pulaski County, Kentucky.

Scaphiocrinus spinobrachiatus Hall. See *Graphiocrinus spinobrachiatus*.

Scaphiocrinus spinobrachiatus Worthen.

1882. *Poteriocrinus spinobrachiatus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 20.

Chester L. S.: Monroe County, Illinois.

1883. *Poteriocrinus spinobrachiatus*. Worthen, Geol. Surv. Ill., vol. 7, p. 290, pl. 29, fig. 1.

Chester L. S.: Monroe County, Illinois.

Scaphiocrinus spinosus Owen and Shumard.

1852. *Poteriocrinus spinosus*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 91, pl. 11, fig. 4.

Carboniferous L. S.: Kaskaskia, Illinois; Grayson County, Kentucky.

1852. *Poteriocrinus spinosus*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 596, tab. 5B, fig. 4.

Carboniferous L. S.: Kaskaskia, Illinois.

Scaphiocrinus striatus. See *Graphiocrinus striatus*.**Scaphiocrinus subcarinatus** Hall.

1864. *Scaphiocrinus subcarinatus*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 58. Waverly Group: Richfield, Ohio.

1875. *Scaphiocrinus subcarinatus*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 176, pl. 12, figs. 13, 14.

Waverly Group: Richfield, Ohio.

Scaphiocrinus subimpressus Meek and Worthen.

1861. *Scaphiocrinus subimpressus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 138.

Burlington L. S.: Burlington, Iowa.

1868. *Poteriocrinus subimpressus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 485, pl. 18, figs. 1a, b.

Burlington Group: Burlington, Iowa.

Scaphiocrinus subtortuosus. See *Decadocrinus subtortuosus*.**Scaphiocrinus subtumidus** Meek and Worthen.

1865. *Poteriocrinus (Scaphiocrinus) subtumidus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 159.

Chester Group: Bay City, Pope County, Illinois.

Scaphiocrinus swallowi Meek and Worthen.

1860. *Poteriocrinus Swallowi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 394.

Burlington L. S.: Burlington, Iowa.

1866. *Poteriocrinus Swallowi*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 183, pl. 16, figs. 4a, b.

Burlington L. S.: Burlington, Iowa.

1881. *Poteriocrinus Jesupi*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 7, pls. 1, 2.

Burlington L. S.: Burlington, Iowa.

1882. *Poteriocrinus subramulosus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 14.

Keokuk L. S.: Keokuk, Iowa.

1883. *Poteriocrinus subramulosus*. Worthen, Geol. Surv. Ill., vol. 7, p. 284, pl. 27, fig. 6.

Keokuk L. S.: Keokuk, Iowa.

Scaphiocrinus tethys Meek and Worthen.

1869. *Scaphiocrinus Tethys*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 143. Upper Burlington L. S.: Burlington, Iowa.

Scaphiocrinus tethys Meek and Worthen—Continued.

1873. *Scaphiocrinus Tethys*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 419, pl. 2, fig. 13.

Burlington L. S.: Burlington, Iowa.

Scaphiocrinus tortuosus. See *Graphiocrinus tortuosus*.**Scaphiocrinus unicus** Hall.

1861. *Scaphiocrinus unicus*. Hall, Desc. New Spec. Crin., p. 8.
Keokuk L. S.
1861. *Scaphiocrinus unicus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 313.
Keokuk L. S.: Crawfordsville, Indiana.
1872. *Scaphiocrinus unicus*. Hall, Photo. Plates of Crinoids, pl. 6, fig. 6.
1873. *Scaphiocrinus unicus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 493, pl. 15, fig. 5.
Keokuk Group: Crawfordsville, Indiana.
1875. *Scaphiocrinus unicus*. Meek and Worthen, Geol. Surv. Ill., vol. 6, p. 519, pl. 29, fig. 1.
Keokuk Group: Crawfordsville, Indiana.

Scaphiocrinus varsoviensis Worthen.

1882. *Poteriocrinus varsoviensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 19.
Warsaw beds: Warsaw, Illinois.
1883. *Poteriocrinus Farsoriensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 290, pl. 28, fig. 15.
Warsaw beds: Warsaw, Illinois.

Scaphiocrinus venustus Worthen.

1882. *Poteriocrinus venustus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 24.
Chester L. S.: Monroe County, Illinois.
1882. *Poteriocrinus olynis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 25.
Chester L. S.: Monroe County, Illinois.
1883. *Poteriocrinus venustus*. Worthen, Geol. Surv. Ill., vol. 7, p. 297, pl. 29, fig. 13.
Chester L. S.: Monroe County, Illinois.
1883. *Poteriocrinus peculiaris*. Worthen, Geol. Surv. Ill., vol. 7, p. 298, pl. 29, fig. 10.
Chester L. S.: Monroe County, Illinois.

Scaphiocrinus wachsmuthi. See *Graphiocrinus wachsmuthi*.**Scaphiocrinus whitei**. See *Poteriocrinus whitei*.**SCHIZOBLASTUS** Etheridge and Carpenter, 1882.**Schizoblastus granulosus** Meek and Worthen.

1865. *Pentremites (Granatocrinus?) granulosus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 165.
Keokuk Group: Warsaw, Illinois.
1873. *Granatocrinus granulosus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 508, pl. 15, fig. 10.
Keokuk Group: Near Warsaw, Illinois.

Schizoblastus lotoblastus White.

1874. *Granatocrinus lotoblastus*. White, Prelim. Rep. Inv. Foss., p. 15.
Subcarboniferous: Ewell's Spring, Arizona.
1879. *Granatocrinus lotoblastus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 80, pl. 5, figs. 3a, b.
Subcarboniferous: Ewell's Spring, Arizona.

Schizoblastus lotoblastus White—Continued.

1879. *Granatocrinus lotoblastus?* White, Bull. U. S. Geol. and Geog. Surv. Terr., vol. 5, p. 212.

Carboniferous: Teton range, near the headwaters of Teton River, just west of the common boundary of Idaho and Wyoming.

Schizoblastus melonoides Meek and Worthen.

1869. *Granatocrinus melonoides*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 88.

Upper Burlington L. S.: Burlington, Iowa.

1873. *Granatocrinus melonoides*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 468, pl. 9, fig. 1.

Burlington L. S.: Burlington, Iowa.

1886. *Schizoblastus melonoides*. Etheridge and Carpenter, Cat. Blast., p. 226, pl. 6, figs. 15, 16.

Upper Burlington L. S.: Burlington, Iowa.

1894. *Schizoblastus melonoides*. Keyes, Mo. Geol. Surv., vol. 4, p. 138.

Upper Burlington L. S.: Louisiana and Hannibal, Missouri.

Schizoblastus potteri Hambach.

1880. *Pentremites Potteri*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 156, pl. B, fig. 4.

Burlington L. S.: Burlington, Iowa.

Schizoblastus roemeri Shumard.

1855. *Pentremites Roemeri*. Shumard, Geol. Rep. Mo., p. 186, pl. B, figs. 2a-d.

Chemung Group: Providence, Boone County, Missouri.

1894. *Schizoblastus? roemeri*. Keyes, Mo. Geol. Surv., vol. 4, p. 137.

Chouteau L. S.: Sedalia and Providence, Missouri.

Schizoblastus sampsoni Hambach.

1884. *Pentremites Sampsoni*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 551, pl. D, figs. 2, 2a.

Chouteau L. S.: Pettis County, Missouri.

Schizoblastus sayi Shumard.

1855. *Pentremites Sayi*. Shumard, Geol. Surv. Mo., p. 185, pl. B, figs. 1a-d.

Base of Enserinital L. S.: Boone, Marion, Jefferson, St. Louis, and Ste. Genevieve counties, Missouri.

1886. *Schizoblastus Sayi*. Etheridge and Carpenter, Cat. Blast., p. 224, pl. 3, figs. 1-3; pl. 6, fig. 18; pl. 10, fig. 17; pl. 17, fig. 1.

Upper Burlington L. S.: Burlington, Iowa.

1894. *Schizoblastus sayi*. Keyes, Mo. Geol. Surv., vol. 4, p. 138, pl. 18, figs. 9a, b.

Burlington L. S.: Ash Grove, Louisiana, Hannibal, Helton, Palmyra, and Ste. Genevieve, Missouri.

SCHIZODUS King, 1844.**Schizodus æqualis** Hall.

1885. *Schizodus æqualis*. Hall, Pal. N. Y., vol. 1, pt. 1, p. 459, pl. 75, fig. 35; pl. 95, fig. 29.

Waverly S. S.: Granville, Licking County, Ohio.

1888. *Schizodus chemungensis* var. *? æqualis*. Herrick, Bull. Den. Univ., vol. 3, p. 64, pl. 1, fig. 25.

Waverly Group: Licking County, Ohio.

Schizodus affinis Herrick.

1887. *Schizodus affinis*. Herrick, Bull. Den. Univ., vol. 2, p. 41, pl. 4, figs. 22, 22a, Coal Measures: Flint Ridge, Ohio.

Schizodus alpina Hall.

1858. *Dolabra? alpina*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 716, pl. 29, fig. 2.
Lower Coal Measures: Alpine Dam, Iowa.
1891. *Schizodus alpina*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 249.
Lower Coal Measures: Des Moines, Iowa.

Schizodus amplus Meek and Worthen.

1870. *Schizodus amplus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 41.
Coal Measures: Seaville, Fulton County, Illinois.
1873. *Schizodus amplus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 579, pl. 27, fig. 6.
Coal Measures: Seaville, Fulton County, Illinois.
1897. *Schizodus* conf. *amplus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 36.
Lower Coal Measures: White County, Arkansas.

Schizodus batesvillensis Weller.

1897. *Schizodus batesvillensis*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 266, pl. 19, figs. 8, 9.
Batesville S. S.: Batesville, Arkansas.

Schizodus chemungensis. See Schizodus prolongatus.**Schizodus chemungensis var. *aqualis*. See Schizodus aqualis.****Schizodus chesterensis Meek and Worthen.**

1860. *Schizodus Chesterensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 457.
Upper Chester L. S.: Chester, Illinois.
1866. *Schizodus chesterensis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 301, pl. 23, figs. 6a, b.
Chester Group: Chester, Illinois.
1891. *Schizodus Chesterensis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 587, pl. 14, fig. 4.
Maxville L. S.: Maxville, Ohio.
1895. *Schizodus Chesterensis*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 474, pl. 10, fig. 4.
Maxville L. S.: Maxville, Ohio.

Schizodus circulus Worthen.

1884. *Schizodus? circulus*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 11.
Oolite beds of St. Louis L. S.: Monroe County, Illinois.
1890. *Schizodus? circulus*. Worthen, Geol. Surv. Ill., vol. 8, p. 109, pl. 19, fig. 1.
St. Louis L. S. (oolite): Monroe County, Illinois.

Schizodus cuneatus Meek.

1875. *Schizodus cuneatus*. Meek, Pal. Ohio, vol. 2, p. 336, pl. 20, fig. 7.
Lower Coal Measures: Putnam Hill and Flint Ridge, Ohio.
1884. *Schizodus cuneatus*. Walcott, Pal. Eureka Dist., p. 252, pl. 20, fig. 8.
Lower Carboniferous: Eureka District, Nevada.
1886. *Schizodus cuneatus?* Heilprin, 2d Geol. Surv. Penn., Ann. Rep. for 1885, p. 456, fig. 9a; p. 442, fig. 9.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Schizodus cuneatus?* Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 275, fig. 9.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Schizodus cuneatus (?)* Herrick, Bull. Den. Univ., vol. 2, p. 42, pl. 4, fig. 23.
Coal Measures: Flint Ridge, Ohio.
1897. *Schizodus cuneatus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 35.
Upper Coal Measures: Crawford County, Arkansas.
Lower Coal Measures: Conway County, Arkansas.

Schizodus cuneus Hall.

- * 1883. *Cytherodon (Schizodus) cuneus*. Hall, Pal. N. Y., vol. 5, pt. 1. Plates and Explanations, pl. 75, figs. 29, 30.
Waverly S. S.: Granville, Licking County, Ohio.
- 1885. *Schizodus cuneus*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 458, pl. 75, figs. 29, 30.
Waverly S. S.: Granville, Licking County, Ohio.
- 1888. *Schizodus cuneus*. Herrick, Bull. Den. Univ., vol. 3, p. 65, pl. 5, fig. 15.
Waverly Group: Licking County, Ohio.
- 1895. *Schizodus cuneus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 21, fig. 15.
Kinderhook: Ohio.

Schizodus curtiformis Walcott.

- 1884. *Schizodus curtiforme*. Walcott, Pal. Eureka Dist., p. 253, pl. 22, figs. 3-3a.
Lower Carboniferous: Eureka District, Nevada.

Schizodus curtus Meek and Worthen.

- * 1866. *Schizodus curtus*. Meek and Worthen, Proc. Chicago Acad. Sci., vol. 1, p. 18.
- 1872. *Schizodus curtus?* Meek, U. S. Geol. Surv. Nebr., p. 208, pl. 10, figs. 13a-e.
Upper Coal Measures: Nebraska City, Nebraska; Wabash Cut-off, Illinois;
Atchison, Kansas.
Lower Coal Measures: Illinois.
- 1873. *Schizodus curtus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 582, pl. 26,
fig. 16.
Coal Measures: Wabash Cut-off near New Harmony, Indiana; Fulton
County, Illinois.
- 1887. *Schizodus curtus*. Herrick, Bull. Den. Univ., vol. 2, p. 42, p. 145, pl. 14, fig. 20.
Coal Measures: Flint Ridge, Ohio.
- 1894. *Schizodus? curtus*. Keyes, Mo. Geol. Surv., vol. 5, p. 124.
Upper Coal Measures: Kansas City, Missouri.

Schizodus depareus Walcott.

- 1884. *Schizodus depareus* Walcott. Pal. Eureka Dist., p. 252, pl. 22, fig. 5.
Lower Carboniferous; Eureka District, Nevada.

Schizodus depressus Worthen.

- 1884. *Schizodus depressus*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 11.
Oolite bed of St. Louis L. S.: Monroe County, Illinois.
- 1890. *Schizodus depressus*. Worthen, Geol. Surv. Ill., vol. 8, p. 108, pl. 18, figs. 8, 8a.
St. Louis L. S. (oolite): Monroe County, Illinois.
- 1897. *Schizodus depressus (?)* Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 267, pl. 20,
figs. 7, 8.
Batesville S. S.: Batesville, Arkansas.

Schizodus harii Miller.

- 1891. *Schizodus harii*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 91, pl. 20,
figs. 1-3.
Coal Measures: Kansas City, Missouri.
- 1892. *Schizodus harii*. Miller, 17th Rep. Geol. Surv. Ind., p. 701, pl. 20, figs. 1-3.
Coal Measures: Kansas City, Missouri.
- 1894. *Schizodus harii*. Keyes, Mo. Geol. Surv., vol. 5, p. 123, pl. 46, fig. 4.
Upper Coal Measures: Kansas City, Missouri.

Schizodus harlamensis Herrick.

- 1888. *Schizodus harlamensis*. Herrick, Bull. Den. Univ., vol. 4, p. 117, pl. 6, fig. 3.
Waverly Group: 1 mile east of Harlam, Delaware County, Ohio.
- 1895. *Schizodus harlemensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 17, fig. 3.
Lower Cuyahoga Shale: Near Harlem, Delaware County, Ohio.

Schizodus magnus Worthen.

- 1884. *Schizodus magnus*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 9.
Chester L. S.: Randolph County, Illinois.

Schizodus magnus Worthen—Continued.

1890. *Leptodomus? magnus*. Worthen, Geol. Surv. Ill., vol. 8, p. 107, pl. 18, fig. 2.
Chester L. S.: About 2 miles below mouth of Mary's River, Randolph County, Illinois.

Schizodus medinsensis Meek.

1871. *Schizodus medinaensis*. Meek, Proc. Acad. Nat. Sci. Phil., p. 165.
Waverly Group: Medina, Ohio.
1375. *Schizodus Medinaensis*. Meek, Pal. Ohio, vol. 2, p. 299, pl. 18, figs. 1a-c.
Waverly Group: Medina, Ohio.
1886. *Schizodus medinensis*. Claypole, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 249.
Lower Coal Measures: Wilkesbarre, Pennsylvania.
1888. *Schizodus medinensis*. Herrick, Bull. Den. Univ., vol. 3, p. 65, pl. 1, fig. 16; pl. 2, fig. 6.
Waverly Group: Licking County, Ohio.

Schizodus moorei Miller.

1889. *Schizodus moorei*. Miller, N. A. Geol. and Pal., p. 511, figs. 918, 919.
Coal Measures: Carbon Hill, Hocking Valley, Ohio.

Schizodus nauvoocensis Worthen.

1884. *Schizodus nauvoocensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 10.
Keokuk L. S.: Nauvoo, Illinois.
1890. *Schizodus nauvoocensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 108, pl. 20, fig. 3.
Keokuk L. S.: Nauvoo, Illinois.

Schizodus newarkensis Herrick.

1888. *Schizodus newarkensis*. Herrick, Bull. Den. Univ., vol. 3, p. 64, pl. 10, fig. 1.
Waverly Group: Licking County, Ohio.
1888. *Schizodus newarkensis*. Herrick, Bull. Den. Univ., vol. 4, p. 36, pl. 6, fig. 6.
Waverly Group: Newark, Ohio.
1895. *Schizodus newarkensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 17, fig. 6.
Burlington Group: Newark, Ohio.

Schizodus obscurus. See *Schizodus wheeleri*.**Schizodus ovatus** Meek and Hayden.

1858. *Azinus (Schizodus) ovatus*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 262.
Upper Coal Measures: Cottonwood Creek, Kansas.
1864. *Schizodus ovatus*. Meek and Hayden, Pal. Up. Mo., p. 59, pl. 2, figs. 11a, b.
Permian: South Cottonwood Creek, Kansas.

Schizodus palaeoneiliformis Herrick.

1888. *Schizodus (Protoschizodus) palaeoneiliformis*. Herrick, Bull. Den. Univ., vol. 3, p. 96, pl. 12, fig. 44.
Waverly Group: Licking County, Ohio.
1888. *Schizodus palaeoneiliformis*. Herrick, Bull. Den. Univ., vol. 4, pl. 6, fig. 2.
Waverly Group: Ohio.
1895. *Schizodus palaeoneiliformis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 17, fig. 2.
Kinderhook Freestone: Licking County, Ohio.

Schizodus perelegans Meek and Worthen.

1870. *Schizodus (Priscaia) perelegans*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 42.
Coal Measures: Danville, Illinois.
1873. *Schizodus (Priscaia) perelegans*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 581, pl. 26, fig. 19.
Coal Measures: Near Danville, Illinois.

Schizodus pintoensis Walcott.

1884. *Schizodus Pintoensis*. Walcott, Pal. Eureka Dist., p. 253, pl. 22, figs. 2-2a.
Lower Carboniferous: Eureka District, Nevada.

Schizodus prolongatus Herrick.

1888. *Schizodus chemungensis*. Herrick, Bull. Den. Univ., vol. 3, pl. 9, fig. 20.
(Not *S. chemungensis* Con. 1842.)
Waverly Group: Licking County, Ohio.
1888. *Schizodus (chemungensis, var.) prolongatus*. Herrick, Bull. Den. Univ.,
vol. 4, p. 36, pl. 6, fig. 1.
Waverly Group: Granville, Ohio.
1895. *Schizodus prolongatus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 17, fig. 1.
Cuyahoga Shale: Licking County, Ohio.

Schizodus quadrangularis Hall.

- *1870. *Schizodus quadrangularis*. Hall, Prelim. Not. Lamell., 2, p. 96.
Chemung Group: New York.
1885. *Schizodus Chemungensis* var. *quadrangularis*. Hall, Pal. N. Y., vol. 5, pt. 1,
p. 454, pl. 75, figs. 31-34, 36.
Chemung Group: New York.
1886. *Schizodus quadrangularis*. Claypole, Proc. and Coll. Wyo. Hist. and Geol.
Soc., vol. 2, pt. 2, pp. 243 and 249.
Lower Coal Measures: Wilkesbarre, Pennsylvania.
1888. *Schizodus quadrangularis*. Herrick, Bull. Den. Univ., vol. 4, pl. 6, fig. 12.
Waverly Group: Ohio.
1895. *Schizodus quadrangularis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 17, fig. 12.
Kinderhook: Granville, Ohio.

Schizodus randolphensis Worthen.

1890. *Schizodus randolphensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 110, pl. 20,
fig. 12.
Chester L. S.: Chester, Illinois.

Schizodus rossicus de Verneuil.

1858. *Schizodus Rossicus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 193.
Upper Permian: Near Smoky Hill Fork, Kansas.
1866. *Schizodus Rossicus*. Geinitz, Carb. und Dyas in Neb., p. 18, tab. 1, figs. 28, 29.
Nebraska City, Nebraska.
1873. *Schizodus Rossicus* ? Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 26,
figs. 17a-e, 18.
Coal Measures.
1874. *Schizodus Rossicus*. Meek, Am. Jour. Sci. (3), vol. 7, p. 580.

Schizodus sedaliensis Miller and Gurley.

1896. *Schizodus sedaliensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat.
Hist., p. 17, pl. 2, figs. 15, 16.
Chouteau L. S.: Sedalia, Missouri.

Schizodus spellmani Herrick.

1887. *Schizodus* (?) *spellmani*. Herrick, Bull. Den. Univ., vol. 2, p. 42, pl. 3, fig. 14.
Coal Measures: Flint Ridge, Ohio.

Schizodus subcircularis Herrick.

1887. *Schizodus sub-circularis*. Herrick, Bull. Den. Univ., vol. 2, p. 41, pl. 4, fig. 24;
p. 145, pl. 14, fig. 18.
Coal Measures: Flint Ridge, Ohio.

Schizodus subtrigonalis Meek.

1871. *Schizodus subtrigonalis*. Meek, Proc. Acad. Nat. Sci. Phil., p. 166.
Waverly Group: Wooster, Ohio.

Schizodus symmetricus Calvin.

1890. *Schizodus symmetricus*. Calvin, Bull. Lab. Nat. Hist., State Univ. Iowa, vol. 1, p. 176, pl. 2, figs. 3a, b.
Upper Coal Measures: Braddyville, Iowa.

Schizodus triangularis Swallow.

1858. *Schizodus triangularis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 193.
Lower Permian: Valley of Cottonwood, Kansas.

Schizodus triangularis Herrick.

1888. *Macrodon ? triangularis*. Herrick, Bull. Den. Univ., vol. 3, p. 74, pl. 8, fig. 8.
Waverly Group: Licking County, Ohio.
1888. *Schizodus triangularis*. Herrick, Bull. Den. Univ., vol. 4, p. 116, pl. 6, figs. 10, 13.
Middle Waverly Group: Ohio.
1895. *Schizodus triangularis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 17, figs. 10, 13.
Kinderhook: Granville, Ohio.

Schizodus ulrichi Worthen.

1890. *Schizodus ulrichi*. Worthen, Geol. Surv. Ill., vol. 8, p. 110, pl. 21, figs. 1-1b; pl. 20, fig. 9.
Upper Coal Measures: Fairfield, Wayne County, Illinois.

Schizodus varsoviensis Worthen.

1884. *Schizodus varsoviensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 10.
Upper Keokuk L. S.: Warsaw, Illinois.
1890. *Schizodus varsoviensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 107, pl. 19, fig. 7.
Keokuk L. S.: Warsaw, Illinois.

Schizodus wheeleri Swallow.

1858. *Schizodus obscurus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 193.
(Not *Azinus obscurus* Sowerby, 1823.)
Lower Permian: Kansas.
1863. *Cypricardia (?) wheeleri*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 96.
Upper Coal Measures: Caldwell County, Missouri.
1866. *Schizodus obscurus*. Geinitz, Carb. und Dyas in Neb., p. 20, tab. 1, figs. 30, 31.
Nebraska City, Nebraska.
1872. *Schizodus wheeleri*. Meek, U. S. Geol. Surv. Neb., p. 209, pl. 10, figs. 1a-f.
Upper Coal Measures: Caldwell County, Missouri; Nebraska City, Nebraska; Adams and Union counties, Iowa.
Coal Measures: Illinois.
1876. *Schizodus wheeleri*. White, Powell's Rep. Geol. Uinta Mts., p. 91.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1877. *Schizodus wheeleri*. White, U. S. Geol. Surv. W. 100 Merid., vol. 4, p. 154, pl. 11, figs. 6a, b.
Carboniferous: Near Bear Spring, Camp Wingate, New Mexico.
1884. *Schizodus wheeleri*. White, 13th Rep. Geol. Surv. Ind., p. 147, pl. 30, figs. 3-5.
Coal Measures: Indiana (?).
1886. *Schizodus wheeleri*. Heilprin, 2d Geol. Surv. Penn., Cum. Rep. for 1885, p. 456, p. 442, fig. 7.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Schizodus wheeleri*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 275, p. 270, fig. 7, p. 274, fig. 7a.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Schizodus wheeleri*. Herrick, Bull. Den. Univ., vol. 2, p. 42, pl. 3, fig. 15.
Coal Measures: Flint Ridge, Ohio.

Schizodus wheeleri Swallow—Continued.

1894. *Schizodus wheeleri*. Keyes, Mo. Geol. Surv., vol. 5, p. 123, pl. 46, figs. 3a-c.
Upper Coal Measures: Kansas City, Missouri.
1897. *Schizodus wheeleri*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 36, pl. 22, fig. 4.
Lower Coal Measures: Conway County, Arkansas.

Schizodus (species undetermined).

1866. *Schizodus* — (sp. ?) Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 345, pl. 27, fig. 6.
Upper Coal Measures: North branch of Saline Creek, Gallatin County, Illinois.
1872. *Schizodus*, undt. Meek, U. S. Geol. Surv. Nebr., p. 210, pl. 10, fig. 2.
Upper Coal Measures: Nebraska City, Nebraska.
1887. *Schizodus*. Herrick, Bull. Den. Univ., vol. 2, pl. 14, fig. 19.
Coal Measures: Flint Ridge, Ohio.
1888. *Schizodus* (sp. und.) Keyes, Proc. Acad. Nat. Sci. Phil., p. 233.
Lower Coal Measures: Des Moines, Iowa.
1897. *Schizodus*? sp. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 267, pl. 19, fig. 5.
Batesville S. S.: Batesville, Arkansas.

SCHIZOPHORIA King, 1850.**Schizophoria resupinata Martin.**

1877. *Orthis resupinata*? Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 265, pl. 5, figs. 1, 2.
Lower Carboniferous L. S.: Dry Canyon, Oquirrh Mountains, Utah.

Schizophoria resupinoides Cox.

1857. *Orthis resupinoides*. Cox, Geol. Surv. Ky., vol. 3, p. 570, pl. 9, figs. 1-1b.
Coal Measures: Hawesville, Hancock County, Kentucky.
1881. *Orthis resupinoides*? White, U. S. Geog. Surv. W. 100 Merid., vol. 3, Supp., Appendix, p. xxiii, pl. 3, figs. 2a, b.
Carboniferous: Mannelitos Creek, New Mexico.
1890. *Orthis resupinoides*. Worthen, Geol. Surv. Ill., vol. 8, p. 106, pl. 11, figs. 4a, b.
Lower Coal Measures: Mercer County, Illinois.
1897. *Orthis* conf. *resupinoides*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 28.
Lower Coal Measures: White and Conway counties, Arkansas.

Schizophoria swallowi Hall.

1848. *Orthis resupinata*. Christy, Letters on Geol., pl. 3, figs. 1, 2.
Carboniferous L. S.: Oquawka, Illinois.
1858. *Orthis swallowi*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 597, pl. 12, figs. 5a, b.
Burlington L. S.: Burlington, Iowa; Quincy, Illinois; Missouri.
1883. *Orthis Swallowi*. Hall, Rep. N. Y. State Geol. for 1882, pl. (6) 36, figs. 23, 24.
Burlington L. S.: Burlington, Iowa.
1892. *Orthis Swallowi*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 6, figs. 23, 24.
Burlington L. S.: Burlington, Iowa.
1894. *Orthis swallowi*. Keyes, Mo. Geol. Surv., vol. 5, p. 63, pl. 38, fig. 5.
Burlington L. S.: Hannibal, Missouri.

SCHÖENASTER Meek and Worthen, 1860.**Schöenaster fimbriatus Meek and Worthen.**

1860. *Palasterina (Schoenaster) fimbriata*. Meek and Worthen, Proc. Acad. Nat. Sci., Phil., p. 449.
St. Louis L. S.: St. Clair County, Illinois.
1866. *Schoenaster fimbriatus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 278, pl. 19, figs. 7a-d.
St. Louis Group: St. Clair County, Illinois.

Schizodus symmetricus Calvin.

1890. *Schizodus symmetricus*. Calvin, Bull. Lab. Nat. Hist., State Univ. Iowa, vol. 1, p. 176, pl. 2, figs. 3a, b.
Upper Coal Measures: Braddyville, Iowa.

Schizodus triangularis Swallow.

1858. *Schizodus triangularis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 193.
Lower Permian: Valley of Cottonwood, Kansas.

Schizodus triangularis Herrick.

1888. *Macrodon* ? *triangularis*. Herrick, Bull. Den. Univ., vol. 3, p. 74, pl. 8, fig. 8.
Waverly Group: Licking County, Ohio.
1888. *Schizodus triangularis*. Herrick, Bull. Den. Univ., vol. 4, p. 116, pl. 6, figs. 10, 13.
Middle Waverly Group: Ohio.
1895. *Schizodus triangularis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 17, figs. 10, 13.
Kinderhook: Granville, Ohio.

Schizodus ulrichi Worthen.

1890. *Schizodus ulrichi*. Worthen, Geol. Surv. Ill., vol. 8, p. 110, pl. 21, figs. 1-1b; pl. 20, fig. 9.
Upper Coal Measures: Fairfield, Wayne County, Illinois.

Schizodus varsoviensis Worthen.

1884. *Schizodus varsoviensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 10.
Upper Keokuk L. S.: Warsaw, Illinois.
1890. *Schizodus varsoviensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 107, pl. 19, fig. 7.
Keokuk L. S.: Warsaw, Illinois.

Schizodus wheeleri Swallow.

1858. *Schizodus obscurus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 193.
(Not *Azinus obscurus* Sowerby, 1823.)
Lower Permian: Kansas.
1863. *Cypricardia* (?) *Wheeleri*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 96.
Upper Coal Measures: Caldwell County, Missouri.
1866. *Schizodus obscurus*. Geinitz, Carb. und Dyas in Neb., p. 20, tab. 1, figs. 30, 31.
Nebraska City, Nebraska.
1872. *Schizodus Wheeleri*. Meek, U. S. Geol. Surv. Neb., p. 209, pl. 10, figs. 1a-f.
Upper Coal Measures: Caldwell County, Missouri; Nebraska City, Nebraska; Adams and Union counties, Iowa.
Coal Measures: Illinois.
1876. *Schizodus Wheeleri*. White, Powell's Rep. Geol. Uinta Mts., p. 91.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1877. *Schizodus Wheeleri*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 154, pl. 11, figs. 6a, b.
Carboniferous: Near Bear Spring, Camp Wingate, New Mexico.
1884. *Schizodus Wheeleri*. White, 13th Rep. Geol. Surv. Ind., p. 147, pl. 30, figs. 3-5.
Coal Measures: Indiana (?).
1886. *Schizodus Wheeleri*. Heilprin, 2d Geol. Surv. Penn., Cum. Rep. for 1885, p. 456, p. 442, fig. 7.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Schizodus Wheeleri*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 275, p. 270, fig. 7, p. 274, fig. 7a.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Schizodus wheeleri*. Herrick, Bull. Den. Univ., vol. 2, p. 42, pl. 3, fig. 15.
Coal Measures: Flint Ridge, Ohio.

Schizodus wheeleri Swallow—Continued.

1894. *Schizodus wheeleri*. Keyes, Mo. Geol. Surv., vol. 5, p. 123, pl. 46, figs. 3a-c.
Upper Coal Measures: Kansas City, Missouri.
1897. *Schizodus wheeleri*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 36, pl. 22, fig. 4.
Lower Coal Measures: Conway County, Arkansas.

Schizodus (species undetermined).

1866. *Schizodus* — (sp. ?) Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 345, pl. 27, fig. 6.
Upper Coal Measures: North branch of Saline Creek, Gallatin County, Illinois.
1872. *Schizodus*, undt. Meek, U. S. Geol. Surv. Nebr., p. 210, pl. 10, fig. 2.
Upper Coal Measures: Nebraska City, Nebraska.
1887. *Schizodus*. Herrick, Bull. Den. Univ., vol. 2, pl. 14, fig. 19.
Coal Measures: Flint Ridge, Ohio.
1888. *Schizodus* (sp. und.) Keyes, Proc. Acad. Nat. Sci. Phil., p. 233.
Lower Coal Measures: Des Moines, Iowa.
1897. *Schizodus*? sp. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 267, pl. 19, fig. 5.
Batesville S. S.: Batesville, Arkansas.

SCHIZOPHORIA King, 1850.**Schizophoria resupinata** Martin.

1877. *Orthis resupinata*? Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 265, pl. 5, figs. 1, 2.
Lower Carboniferous L. S.: Dry Canyon, Oquirrh Mountains, Utah.

Schizophoria resupinoides Cox.

1857. *Orthis resupinoides*. Cox, Geol. Surv. Ky., vol. 3, p. 570, pl. 9, figs. 1-1b.
Coal Measures: Hawesville, Hancock County, Kentucky.
1881. *Orthis resupinoides*? White, U. S. Geog. Surv. W. 100 Merid., vol. 3, Supp., Appendix, p. xxiii, pl. 3, figs. 2a, b.
Carboniferous: Manuelitos Creek, New Mexico.
1890. *Orthis resupinoides*. Worthen, Geol. Surv. Ill., vol. 8, p. 106, pl. 11, figs. 4a, b.
Lower Coal Measures: Mercer County, Illinois.
1897. *Orthis* conf. *resupinoides*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 28.
Lower Coal Measures: White and Conway counties, Arkansas.

Schizophoria swallowi Hall.

1848. *Orthis resupinata*. Christy, Letters on Geol., pl. 3, figs. 1, 2.
Carboniferous L. S.: Oquawka, Illinois.
1858. *Orthis swallowi*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 597, pl. 12, figs. 5a, b.
Burlington L. S.: Burlington, Iowa; Quincy, Illinois; Missouri.
1883. *Orthis Swallowi*. Hall, Rep. N. Y. State Geol. for 1882, pl. (6) 36, figs. 23, 24.
Burlington L. S.: Burlington, Iowa.
1892. *Orthis Swallowi*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 6, figs. 23, 24.
Burlington L. S.: Burlington, Iowa.
1894. *Orthis swallowi*. Keyes, Mo. Geol. Surv., vol. 5, p. 63, pl. 38, fig. 5.
Burlington L. S.: Hannibal, Missouri.

SCHÖENASTER Meek and Worthen, 1860.**Schoenaster fimbriatus** Meek and Worthen.

1860. *Palasterina* (*Schoenaster*) *fimbriata*. Meek and Worthen, Proc. Acad. Nat. Sci., Phil., p. 449.
St. Louis L. S.: St. Clair County, Illinois.
1866. *Schoenaster fimbriatus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 278, pl. 19, figs. 7a-d.
St. Louis Group: St. Clair County, Illinois.

Schoenaster legrandensis Miller and Gurley.

1890. *Schoenaster legrandensis*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 371, pl. 9, figs. 7, 8.
Kinderhook Group: Legrand, Iowa.

Schoenaster wachsmuthi Meek and Worthen.

1866. *Schoenaster Wachsmuthi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 259.
Upper Burlington L. S.: Burlington, Iowa.
1868. *Schoenaster Wachsmuthi*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 499, pl. 17, fig. 4.
Burlington L. S.: Burlington, Iowa.

(SCORPIO.)

Scorpio carbonarius Meek and Worthen. See *Eoscorpius carbonarius*.

SOYTALOCRINUS Wachsmuth and Springer, 1879.

Soytalocrinus abnormis Worthen.

1875. *Scaphiocrinus abnormis*. Worthen, Geol. Surv. Ill., vol. 6, p. 519, pl. 31, fig. 6.
St. Louis Group: Monroe County, Illinois.

Soytalocrinus bisselli Worthen.

1873. *Poteriocrinites Bisselli*. Worthen, Geol. Surv. Ill., vol. 5, p. 546, pl. 21, fig. 4.
Chester Group: Chester, Illinois.

Soytalocrinus dactylus Hall.

1860. *Graphiocrinus dactylus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 80.
St. Louis L. S.: Near St. Louis, Missouri.
1873. *Graphiocrinus dactylus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 559, pl. 20, fig. 9.
St. Louis L. S.: Monroe County, Illinois.
1894. *Soytalocrinus dactylus*. Keyes, Mo. Geol. Surv., vol. 4, p. 213.
St. Louis L. S.: St. Louis, Missouri.

Soytalocrinus decabrachiatus Hall.

1858. *Scaphiocrinus decabrachiatu*s. Hall, Geol. Iowa, vol. 1, pt. 2, p. 679, pl. 25, fig. 1.
Kaskaskia L. S.: Kaskaskia, Illinois.
1860. *Scaphiocrinus longidactylus*. McChesney, Desc. New Pal. Foss., p. 7.
Kaskaskia L. S.: Kaskaskia, Illinois.
1865. *Scaphiocrinus longidactylus*. McChesney, Ill. New Spec. Foss., pl. 4, fig. 4.
1868. *Scaphiocrinus longidactylus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 4, pl. 4, fig. 4.
Chester L. S.: Kaskaskia, Illinois.
1882. *Scaphiocrinus decabrachiatu*s. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 17.
St. Louis L. S. (not Chester, as reported by Hall).

Soytalocrinus decadaetylus Meek and Worthen.

1860. *Pateriocrinus (Scaphiocrinus) decadaetylus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 394.
Keokuk L. S.: Appanoose, Hancock County, Illinois.
1866. *Scaphiocrinus decadaetylus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 238, pl. 17, fig. 6.
Keokuk L. S.: Appanoose, Hancock County, Illinois.

Scytalocrinus grandis Wachsmuth and Springer.

1860. *Cyathocrinus dekadaactylus*. Lyon and Casseday, Am. Jour. Sci. (2), vol. 29, p. 73.

Subcarboniferous: Montgomery County, Indiana.

1875. *Poteriocrinus Coreyi*. Worthen, Geol. Surv. Ill., vol. 6, p. 516, pl. 29, figs. 2, 3 (not *P. coreyi* M. and W., 1869).

Keokuk Group: Crawfordsville, Indiana.

1879. *Poteriocrinus* (*Scytalocrinus*) *grandis*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 341. (Rev. Palaeocr. I, p. 118.)

Scytalocrinus indianensis Meek and Worthen.

1865. *Poteriocrinus Indianensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 155.

Keokuk Group: Crawfordsville, Indiana.

1868. *Poteriocrinus Indianensis*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 515, pl. 20, fig. 4.

Keokuk Group: Crawfordsville, Indiana.

Scytalocrinus macrodactylus Meek and Worthen.

1861. *Poteriocrinus fusiformis*. Hall, Desc. New Spec. Crin., p. 6. (Not *P. fusiformis* Schultz.)

Burlington L. S.

1861. *Poteriocrinus fusiformis*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 302. Burlington L. S.: Burlington, Iowa.

1869. *Scaphiocrinus macrodactylus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 140.

Lower Burlington L. S.: Burlington, Iowa.

1873. *Scaphiocrinus macrodactylus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 415, pl. 2, fig. 9.

Burlington L. S.: Burlington, Iowa.

Scytalocrinus robustus Hall.

1861. *Scaphiocrinus robustus*. Hall, Desc. New Spec. Crin., p. 7.

Keokuk L. S.

1861. *Scaphiocrinus robustus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 315.

Keokuk L. S.: Crawfordsville, Indiana.

1872. *Scaphiocrinus robustus*. Hall, Photo. Plates of Crinoids, pl. 6, figs. 3-5.

1875. *Poteriocrinus Hoveyi*. Worthen, Geol. Surv. Ill., vol. 6, p. 516, pl. 29, fig. 6.

Keokuk Group: Crawfordsville, Indiana.

1882. *Poteriocrinus hamiltonensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 7.

Upper Keokuk L. S.: Hamilton, Illinois.

1883. *Poteriocrinus hamiltonensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 273, pl. 27, fig. 9.

Keokuk Group: Hamilton, Illinois.

Scytalocrinus talboti Worthen.

1882. *Poteriocrinus talboti*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 17.

St. Louis L. S.: Monroe County, Illinois.

1883. *Poteriocrinus Talboti*. Worthen, Geol. Surv. Ill., vol. 7, p. 287, pl. 30, fig. 7.

St. Louis L. S.: Monroe County, Illinois.

Scytalocrinus vanhornei Worthen.

1875. *Poteriocrinus Van Hornei*. Worthen, Geol. Surv. Ill., vol. 6, p. 517, pl. 31, figs. 2, 3.

St. Louis L. S.: Alton, Illinois.

1894. *Scytalocrinus vanhornei*. Keyes, Mo. Geol. Surv., vol. 4, p. 213, pl. 26, fig. 3.

St. Louis L. S.: St. Louis, Missouri.

Scytalocrinus wachsmuthi Wetherby.

1880. *Scytalocrinus wachsmuthi*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 3, p. 155, pl. 5, fig. 4.

Kaskaskia Group: Pulaski County, Kentucky.

Scytalocrinus wetherbyi Miller.

1879. *Poteriocrinus Wetherbyi*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 36, pl. 8, figs. 1-1b.

Kaskaskia Group: Pulaski County, Kentucky.

SEDGWICKIA McCoy, 1844.**Sedgwickia altirostrata Meek and Hayden.**

1858. *Allorisma? altirostrata*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 263.

Upper Coal Measures: Grasshopper Creek, Kansas.

1864. *Sedgwickia? altirostrata*. Meek and Hayden, Pal. Up. Mo., p. 41, pl. 1, fig. 9. Coal Measures: Juniata, on Big Blue River, Kansas.

Sedgwickia concava Meek and Hayden.

1858. *Lyonsia (Penopaea) concava*. Meek and Hayden, Trans. Albany Inst., vol. 4, p. 82.

Permian: Missouri River.

1864. *Sedgwickia? concava*. Meek and Hayden, Pal. Up. Mo., p. 41, pl. 1, figs. 8a, b. Coal Measures: Nebraska, opposite the northern boundary of Missouri.

1877. *Sedgwickia? concava*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 276, pl. 6, fig. 3.

Upper Coal Measures: Foothills southeast of Salt Lake City, Wahsatch range, Utah.

Sedgwickia subarcuata Meek and Worthen.

1855. *Sedgwickia (Sanguinolites?) subarcuata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 251.

Upper Keokuk Group.

1868. *Sedgwickia (Sanguinolites?) subarcuata*. Meek and Worthen, Geol. Surv., Ill., vol. 3, p. 537, pl. 19, fig. 3b.

Keokuk Group.

Sedgwickia topekaensis Shumard.

1858. *Leptodomus Topekaensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 208. Coal Measures: Missouri River bluffs, a short distance below mouth of Kansas River.

1864. *Sedgwickia topekaensis?* Meek and Hayden, Pal. Up. Mo., p. 40, figs. A, B. Coal Measures: Leavenworth City, Kansas.

1891. *Sedgwickia topekaensis*. White, Bull. U. S. Geol. Surv., No. 77, p. 26, pl. 4, fig. 11.

Permian: Goodwin Creek, Baylor County, Texas.

1894. *Allorisma topekaensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 128. Upper Coal Measures: Kansas City, Missouri.

SEMINULA McCoy, 1844.**Seminula argentea Shepard.**

1838. *Terebratula argentea*. Shepard, Am. Jour. Sci. (1), vol. 34, p. 152, fig. 8. Limestone: Western bluff of Little Vermilion River, Illinois.

1852. *Terebratula plano-sulcata*. Owen, Geol. Rep. Wis., Iowa, and Minn., tab. 5, fig. 9.

Carboniferous L. S.: Near Council Bluffs.

Seminula argentea Shepard—Continued.

1852. *Terebratula subtilita*. Hall, Stansb. Exped. Gt. Salt Lake. p. 409, pl. 2, figs. 1a, b, 2a, b.
Carboniferous: Missouri River, near Weston.
1854. *Terebratula subtilita*. Shumard, Marcy's Expl. Red River of Louis., p. 176, pl. 4, fig. 8.
Carboniferous: Washington County, Arkansas.
1855. *Terebratula subtilita*. Schiel, Pac. R. R. Rep., vol. 2, p. 108, pl. 1, figs. 2a, b.
Carboniferous L. S.: 6 miles west of Westport.
1856. *Terebratula subtilita*. Hall, Pac. R. R. Rep., vol. 3, p. 101, pl. 2, figs. 3-5.
Carboniferous: Pecos Village, New Mexico.
1858. *Terebratula subtilita*. Marcou, Geol. N. A., p. 52, pl. 6, figs. 9-9f.
Mountain L. S.: Sierra Madre; Sierra de Mogoyon; Great Salt Lake; Tigras and Pecos Village, New Mexico; summit of Sierra de Sandia and Sierra de Mogoyon; El Paso Chihuahua; junction of rivers San Pedro and Gila, Arizona; sources of Rio Colorado Chiquito; Shasta County, California; Vancouver Island.
1858. *Terebratula subtilita*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 714.
Coal Measures: Ohio; Indiana; Illinois; Iowa; Missouri; Kansas; Nebraska; and Pecos Village, New Mexico.
1859. *Spirigera subtilita*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 28.
Upper Coal Measures: Kansas.
1860. *Athyris differentius*. McCasney, Desc. New Pal. Foss., p. 47.
Coal Measures: Lasalle, Springfield, Belleville, and Sparta, Illinois; Carboniferous and near Richmond, Missouri.
1860. *Spirigera Charitonensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 651.
Coal Measures: Chariton and Randolph counties, Missouri.
1860. *Spirigera Haventii*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 652.
Coal Measures: Missouri.
1861. *Athyris subtilita*. Newberry, Ives's Colo. Expl. Exped., p. 126.
Upper Carboniferous: Cherty L. S. on banks of Colorado between Little Colorado and Diamond rivers; Pecos Village, east of Santa Fe.
1863. *Spirigera Singletonii*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 87.
Lower Coal Measures: Boone and Adrain counties, Missouri.
1863. *Spirigera caput-serpentis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 90.
Upper Coal Measures: Missouri and Kansas.
1866. *Athyris subtilita*. Geinitz, Carh. und Dyas in Nebr., p. 40, tab. 3, figs. 7-9.
Omaha City, Plattsmouth, Bennett's Mill, and Nebraska City, Nebraska.
1872. *Athyris subtilita*. Meek, U. S. Geol. Surv. Nebr., p. 180, pl. 1, fig. 12; pl. 5, fig. 8; pl. 8, fig. 4.
Upper Coal Measures: Nebraska City, Bennett's Mill, Wyoming, Cedar Bluff, Rock Bluff, Plattsmouth, Bellevue, and Omaha, Nebraska.
Coal Measures: Illinois; Missouri; Iowa; West Virginia; Ohio; Kansas; Pecos Village, New Mexico.
1873. *Athyris subtilita*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 570, pl. 25, fig. 14.
Coal Measures: Illinois.
1874. *Athyris subtilita*. Derby, Bull. Cornell Univ. (science), vol. 1, No. 2, p. 7, pl. 1, figs. 5, 7, 8; pl. 3, figs. 8, 16, 19; pl. 6, fig. 2; pl. 9, fig. 4.
Coal Measures: Bomjardim, Itaituba, and Paredão, Brazil.
1876. *Spirigera subtilita*. White, Powell's Rep. Geol. Uinta Mts., p. 90.
Lower Aubrey Group: Confluence of Grand and Green rivers, and near Echo Park, Utah.
Upper Aubrey Group: Beehive Point, near Horseshoe Canyon, Utah.

Seminula argentea Shepard—Continued.

1876. *Athyris subtilita*. Meek, Sampson's Expl. Gt. Basin, Utah, p. 350, pl. 2, figs. 4a, b.
Yellow L. S. (Coal Measures): Humboldt Mountains.
1876. *Athyris subtilita*. Newberry, U. S. Expl. Exp. from Santa Fé to Grand and Green rivers, p. 138.
Upper Carboniferous: On the Colorado; west of the San Francisco Mountains; junction of Grand and Green rivers; in the Sierra la Plata; at Santa Fé; Pecos.
1876. *Athyris subtilita*. Meek, Bull. U. S. G. and G. Surv. Terr., vol. 2, p. 355, pl. 1, figs. 2, 2a.
Carboniferous: Kattahwoke, Rocky Mountains.
1877. *Spirigera subtilita*. White, U. S. Geol. Surv., W. 100 Merid., vol. 4, p. 141, pl. 10, figs. 6a-c.
Carboniferous: Carizo Creek, Maricopa County; Camp Apache; Tenney's Ranch; Kaibab Plateau; confluence of White Mountain and Black rivers; Grass Mountain, 35 miles north of Pioche, and foothills of Dragoon Mountains, Arizona; Fossil Hill, White Pine County, and Camp Cottonwood, Nevada; 15 miles south of St. George; near Ophir City; Rock Canyon, Wasatch range, near Provo; and near Minersville, Utah.
1877. *Athyris subtilita*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 83, pl. 8, figs. 6, 6a.
Carboniferous L. S.: Ruby Group; Moleen Peak; near Humboldt River, Nevada.
1884. *Athyris subtilita*. White, 13th Rep. Geol. Surv. Ind., p. 136, pl. 35, figs. 6-9.
Coal Measures: Indiana.
1887. *Athyris subtilita*. Herrick, Bull. Den. Univ., vol. 2, p. 44, pl. 1, figs. 18 (16a-c?).
Coal Measures: Flint Ridge, Ohio.
1888. *Athyris subtilita*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 231.
Lower Coal Measures: Des Moines, Iowa.
1891. *Athyris subtilita*. Whitfield, Am. N. Y. Acad. Sci., vol. 5, p. 604, pl. 16, figs. 7-9.
Coal Measures: Hocking County, Ohio.
1894. *Seminula subtilita*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 55, figs. 16-19.
Coal Measures: Chariton County, Missouri; Winterset, Iowa, near Kansas City, Missouri.
1894. *Athyris argentea*. Keyes, Mo. Geol. Surv., vol. 5, p. 92, pl. 39, figs. 11a-d.
Coal Measures: Kansas City, Lexington, and Clinton, Missouri.
1895. *Seminula subtilita*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 47, figs. 17-31.
Coal Measures: Manhattan, Kansas; Copper's Creek, Iowa; Chariton County, Missouri; Winterset, Iowa; Miami County, Kansas; Kansas City, Missouri; Ohio.
(?) Chester L. S.: Caldwell County, Kentucky; Chester, Illinois.
1895. *Athyris subtilita*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 488, pl. 12, figs. 7-9.
Coal Measures: Falls Township and Webb Summit, Hocking County, Ohio.
1897. *Athyris subtilita*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 31.
Upper Coal Measures: Sebastian County, Arkansas; Poteau Mountain, Indian Territory; Boone Chert, Stone County, Arkansas.

Seminula claytoni Hall and Whitfield.

1877. *Athyris claytoni*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 256, pl. 4, figs. 15-17.
Lower Carboniferous L. S. (Waverly?): Little Cottonwood, 800 feet east of Reed and Benson's mine, Wahsatch range, Utah.

Seminula dawsoni Hall and Clarke.

1863. *Athyris subtilita*. Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 170, pl. 9, figs. 4, 5. (Not *A. subtilita* Hall, 1852.)
Lower Carboniferous L. S.: Shubenacadie, Brookfield, etc., Nova Scotia.
1868. *Athyris subtilita*. Dawson, Acad. Geol., p. 290, figs. 88a-c.
Lower Carboniferous L. S.: Shubenacadie, Brookfield, etc., Nova Scotia.
1894. *Seminula Dawsoni*. Hall, 13th Am. Rep. N. Y. State Geol., p. 652.
Carboniferous L. S.: Windsor, Nova Scotia.
1895. *Seminula Dawsoni*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, p. 364, pl. 47, figs. 32-34.
Carboniferous L. S.: Windsor, Nova Scotia.
1897. *Seminula Dawsoni*. Hall, 14th Rep. N. Y. State Geol., p. 359, pl. 9, figs. 14-16.
Carboniferous L. S.: Windsor, Nova Scotia.

Seminula formosa Swallow.

1863. *Spirigera formosa*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 91.
Archimedes L. S.: Boonville, Missouri.
1863. *Spirigera euzona*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 91.
Archimedes L. S.: Cooper County, Missouri.
1894. *Athyris formosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 91.
Keokuk L. S.: Boonville, Missouri.

Seminula maconensis Swallow.

1860. *Spirigera Maconensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 651.
Coal Measures: Montgomery County, Missouri.

Seminula parva Swallow.

1863. *Terebratula parva*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 83.
Keokuk, Iowa: Monroe and Cooper counties, Missouri.
1894. *Terebratula parva*. Keyes, Mo. Geol. Surv., vol. 5, p. 105.
Keokuk L. S.: Keokuk, Iowa.

Seminula persinuata Meek.

1877. *Athyris? persinuata*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 81, pl. 9, figs. 4-4b.
Carboniferous L. S.: White Pine Mountains, Nevada.

Seminula plattensis Swallow.

1863. *Spirigera plattensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 87.
Upper Coal Measures: Missouri, Kansas, and Nebraska.

Seminula subquadrata Hall.

1858. *Athyris subquadrata*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 703, pl. 27, figs. 2 a-d; p. 708, fig. 118.
Kaskaskia L. S.: Chester, Illinois; Crittenden County, Kentucky.
1877. *Athyris subquadrata?* Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 271, pl. 5, figs. 19, 20.
Wahsatch L. S.: Snowstorm Hill, near Dry Canyon, Oquirrh Mountains, Utah.
1886. *Athyris subquadrata*. Heilprin, 2d. Geol. Surv. Penn., Ann. Rep. for 1885, p. 453, p. 440, fig. 2.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Athyris subquadrata*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 269, fig. 2.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1891. *Athyris subquadrata*. Whitfield, Am. N. Y. Acad. Sci., vol. 5, p. 585, pl. 14, figs. 1-3.
Maxville L. S.: Newtonville and Maxville, Ohio.

Seminula subquadrata Hall—Continued.

1894. *Seminula subquadrata*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 35, figs. 13, 15.
Chester L. S.: Crittenden County, Kentucky.
St. Louis L. S.: Pella, Iowa.
1894. *Athyris subquadrata*. Keyes, Mo. Geol. Surv., vol. 5, p. 92.
Kaskaskia L. S.: Ste. Mary, Missouri.
1895. *Seminula subquadrata*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 47, figs. 7-9, 15, 16; pl. 84, figs. 30, 31.
Kaskaskia L. S.: Chester, Ill.; Crittenden County, Kentucky.
St. Louis L. S.: Pella, Iowa; Spergen Hill, Indiana.
1895. *Athyris subquadrata*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 472, pl. 10, figs. 1-3.
Maxville L. S.: Newtonville and Maxville, Ohio.
1897. *Athyris subquadrata*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 258, pl. 18, fig. 16.
Batesville S. S.: Batesville, Arkansas.

Seminula trinuclea Hall.

1856. *Terebratulina trinuclea*. Hall, Trans. Albany Inst., vol. 4, p. 7.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana.
1858. *Terebratulina trinuclea*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 659, pl. 23, figs. 4 a-c, 5.
Warsaw L. S.: Bloomington and Spergen Hill, Indiana.
1882. *Athyris trinucleus*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 50, pl. 6, figs. 22-27.
St. Louis Group: Spergen Hill and Bloomington, Indiana; Alton, Illinois; near Boonville, Missouri.
1883. *Athyris trinucleus*. Hall, 12th Rep. Geol. Surv. Ind., p. 329, pl. 29, figs. 22-27.
St. Louis Group: Spergen Hill, Lanesville, Greencastle Junction, and Bloomington, Indiana.
1894. *Seminula trinuclea*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 35, figs. 11, 12, 14.
St. Louis Group: Harrison County and Spergen Hill, Indiana.
1894. *Athyris trinuclea*. Keyes, Mo. Geol. Surv., vol. 5, p. 92.
St. Louis L. S.: Barrett Station, Missouri.
1895. *Seminula trinuclea*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 47, figs. 5, 6, 10-14.
St. Louis L. S.: Harrison County, Spergen Hill, and Bloomington, Indiana.

Seminula wasatchensis White.

1874. *Rhynchonella Wasatchensis*. White, Prelim. Rep. Inv. Foss., p. 19.
Carboniferous (Coal Measures): Rock Canyon, Wasatch range, near Provo, Utah.
1877. *Rhynchonella Wasatchensis*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 130, pl. 9, figs. 3a-d.
Carboniferous: Rock Canyon, Wasatch range, near Provo, Utah.

Seminula (species undetermined).

1895. *Athyris* (*Seminula*?) sp.? Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 47, fig. 35.
Coal Measures? Ohio.

SEPTOPORA Prout, 1859.**Septopora biserialis Swallow.**

1858. *Synodiadia virgulacea* (?) Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 179.
(Not *S. virgulacea* Phillips.)
Lower Permian: Valley of the Cottonwood, Kansas.

Septopora biserialis Swallow—Continued.

1858. *Synocladia biserialis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 179.
Lower Permian: Valley of the Cottonwood, Kansas.
1859. *Synocladia biserialis*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 24.
Upper Coal Measures: Fort Riley, Kansas.
1866. *Synocladia virgulacea*. Geinitz, Carb. und Dyas in Nebr., p. 70, tab. 5, fig. 14.
(Not *S. virgulacea* Phillips, 1829.)
Nebraska.
1872. *Synocladia biserialis*. Meek, U. S. Geol. Surv. Nebr., p. 156, pl. 7, figs. 5a-e.
Permian: Kansas.
Upper Coal Measures: Nebraska City, Nebraska; Kansas; Nebraska; Iowa;
Illinois.
Lower Coal Measures: Illinois.
1873. *Synocladia virgulacea*, var. *biserialis*. Meek and Worthen, Geol. Surv. Ill.,
vol. 5, pl. 24, figs. 15a-c.
1874. *Synocladia biserialis*. Meek, Am. Jour. Sci. (3), vol. 7, p. 486.
Upper Coal Measures.
1875. *Synocladia biserialis*. Meek, Pal. Ohio, vol. 2, p. 326, pl. 20, figs. 5a, b.
Lower Coal Measures: Near Newark, Ohio.
1877. *Synocladia biserialis*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 107,
pl. 7, figs. 3a-e.
Carboniferous (Red Wall L. S.): Camp Apache, Maricopa County, Arizona.
1884. *Synocladia biserialis*. White, 13th Rep. Geol. Surv. Ind., p. 138, pl. 25,
figs. 11-13.
Coal Measures: Above roof of Coal K, Indiana.
1887. *Septopora biserialis*. Foerste, Bull. Den. Univ., vol. 2, p. 87, pl. 7, figs. 16a, b.
Coal Measures: One-half mile west of Brownsville, Ohio.
1888. *Synocladia biserialis*. Keyes, Proc. Acad. Nat. Sci., Phil., p. 225.
Lower Coal Measures: Des Moines, Iowa.
1890. *Septopora biserialis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 631, pl. 56, fig. 11.
Upper and Lower Coal Measures: Illinois; Iowa; Kansas; Nebraska;
Missouri; Kentucky.
1894. *Septopora biserialis*. Keyes, Mo. Geol. Surv., vol. 5, p. 32, pl. 34, figs. 1a-d.
Lower Coal Measures: Des Moines, Iowa.
Upper Coal Measures: Kansas City, Missouri.
1897. *Septopora biserialis*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 27.
Upper Coal Measures: Poteau Mountain, Indian Territory.

Septopora biserialis var. *gracilis* Foerste.

1887. *Septopora biserialis* var. *gracilis*. Foerste, Bull. Den. Univ., vol. 2, p. 80, pl. 7,
figs. 7a-c.
Coal Measures: Flint Ridge, Ohio.

Septopora biserialis var. *nervata* Ulrich.

1890. *Septopora biserialis* var. *nervata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 632, pl. 64,
fig. 6.
Chester Group: Kentucky.
Upper Coal Measures: Illinois; near Red Oak, Iowa.

Septopora cestriensis Prout.

1859. *Septopora Cestriensis*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 448, pl. 18,
figs. 2-2c.
Upper Archimedes L. S.: Chester, Illinois.
1873. *Synocladia cestriensis*. Meek and Worthen. (See *Septopora subquadrans*.)
1890. *Septopora cestriensis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 628, pl. 64, figs. 1-1b.
Chester Group: Chester, Illinois; Sloan's Valley, Kentucky.
1894. *Septopora cestriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 32.
Kaskaskia L. S.: Chester, Illinois.

Septopora decipiens Ulrich.

1890. *Septopora decipiens*. Ulrich, Geol. Surv. Ill., vol. 8, p. 630, pl. 67, fig. 9.
Chester Group: Sloan's Valley, Kentucky.

Septopora delicatula Ulrich.

1890. *Septopora delicatula*. Ulrich, Geol. Surv. Ill., vol. 8, p. 634, pl. 64, figs. 5, 5a.
Lower Coal Measures: Seville, Illinois.

Septopora pinnata Ulrich.

1890. *Septopora pinnata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 633, pl. 64, fig. 7;
pl. 65, figs. 1, 1a.

Septopora rectistyla Whitfield.

1882. *Synocladia rectistyla*. Whitfield, Am. N. Y. Acad. Sci., vol. 2, p. 220.
Maxville L. S.: Newtonville, Ohio.
1891. *Synocladia rectistyla*. Whitfield, Am. N. Y. Acad. Sci., vol. 5, p. 579, pl. 13,
figs. 9, 10.
Maxville L. S.: Newtonville, Ohio.
1895. *Synocladia rectistyla*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 467, pl. 9,
figs. 9, 10.
Maxville L. S.: Newtonville, Ohio.

Septopora robusta Ulrich.

1890. *Septopora robusta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 633, pl. 56, figs. 9-9c;
pl. 64, figs. 3, 3a.
Upper Coal Measures: Fayette County, Illinois.

Septopora robusta var. *intermedia* Ulrich.

1890. *Septopora robusta* var. *intermedia*. Ulrich, Geol. Surv. Ill., vol. 8, p. 634,
pl. 56, fig. 10; pl. 64, figs. 4, 4a.
Chester Group: Litchfield and Sloan's Valley, Kentucky.

Septopora subquadrans Ulrich.

1873. *Synocladia Cestriensis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 24,
figs. 14a-c. (Not *S. cestriensis* Prout, 1859.)
Chester L. S.
1874. *Synocladia Cestriensis*. Meek, Am. Jour. Sci. (3), vol. 7, p. 486.
Chester L. S.
1890. *Septopora subquadrans*. Ulrich, Geol. Surv. Ill., vol. 8, p. 629, pl. 56,
figs. 7, 8; pl. 64, figs. 2-2b.

SERPULA Linnaeus, 1758.**Serpula insita** White.

1878. *Serpula insita*. White, Proc. Acad. Nat. Sci. Phil., p. 37.
Coal Measures: Newport, Vermilion County, Indiana.
1888. *Serpula insita*. White, Cont. to Inv. Pal., No. 8, p. 171, pl. 42, fig. 8a.
Coal Measures: Newport, Vermilion County, Indiana.

Serpula planorbites Geinitz (not Mün.). See *Straparollus catilloides*.**Serpula** (undetermined species).

1858. *Serpula (Spirorbis) valvata* Goldfuss. Swallow, Trans. St. Louis Acad. Sci.,
vol. 1, p. 180.
Upper Permian: Kansas.

SERPULITES Murchison, 1839.**Serpulites annulatus** Dawson.

1868. *Serpulites annulatus*. Dawson, Acad. Geol., p. 312, fig. 131.
Carboniferous L. S.: Windsor, Nova Scotia.

Serpulites carbonarius McCoy.

*1844. *Serpulites carbonarius*. McCoy, Carb Foss. Ireland, p. 170, Tab. 23, fig. 32.

1878. *Serpulites carbonarius*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 611.

Carboniferous: Rawling Bay.

Serpulites hortonensis Dawson.

1868. *Serpulites Hortonensis*. Dawson, Acad. Geol., p. 312, fig. 130.

Carboniferous L. S.: Halfway River, Nova Scotia.

Serpulites inelegans Dawson.

1868. *Serpulites inelegans*. Dawson, Acad. Geol., p. 312.

Carboniferous L. S.: Windsor, Nova Scotia.

Serpulites murrayi Dawson.

1883. *Serpulites Murrayi*. Dawson, Rep. Peter Redpath Mus., No. 2, p. 13.

Lower Carboniferous L. S.: Port-au-Port, Newfoundland.

(SHUMARDOCRINUS Miller and Gurley, 1895.)

Shumardocrinus concinnus. See *Steganoocrinus concinnus*.

SOLEN Linnaeus, 1758.

Solen missouriensis. See *Promacrus missouriensis*.

Solen permianus. See *Solenopsis permianus*.

Solen quadrangularis Winchell

1862. *Solen quadrangularis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 422.

Marshall Group: Marshall, Michigan.

1870. *Solen quadrangularis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 256.

Waverly Group: Granville, Ohio.

Solen scalpriformis. See *Solenopsis scalpriformis*.

Solen (species undetermined).

1887. *Solen?* sp. ? Herrick, Bull. Den. Univ., vol. 2, p. 38, pl. 1, fig. 19.

Coal Measures: Flint Ridge, Ohio.

SOLENISCUS Meek and Worthen, 1860.

Soleniscus altonensis Worthen.

1873. *Macrocheilus Altonensis*. Worthen, Geol. Surv. Ill., vol. 5, p. 593, pl. 28, fig. 8.

Lower Coal Measures: Alton, Illinois.

1889. *Soleniscus altonensis*. Keyes, Am. Nat., vol. 23, p. 423.

1889. *Soleniscus altonensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 307.

Soleniscus? anguliferus White.

1874. *Macrocheilus angulifera*. White, Prelim. Rep. Inv. Foss., p. 22.

Carboniferous (Coal Measures): Camp Cottonwood, Spring Mountain range, Nevada.

1877. *Macrocheilus anguliferus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 160, pl. 12, figs. 3a-f.

Carboniferous: Camp Cottonwood, near Spring Mountain, Nevada.

1889. *Soleniscus?? anguliferus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 307.

Soleniscus attenuatus. See *Soleniscus fusiformis*.

Soleniscus? blairi Miller.

1891. *Macrochilina blairi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 84, pl. 14, fig. 5.

Chouteau L. S.: Sedalia, Missouri.

1892. *Macrochilina blairi*. Miller, 17th Rep. Geol. Surv. Ind., p. 694, pl. 14, fig. 5.

Chouteau L. S.: Sedalia, Missouri.

***Soleniscus brevis* White.**

1858. *Macrocheilus ventricosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 718, pl. 29, fig. 8.
(Not *Phasianella ventricosa* Goldf., 1841.)
Lower Coal Measures: Des Moines Valley, Iowa.
1881. *Soleniscus brevis*. White, U. S. Geol. Surv. W. 100 Merid., vol. 3, Supp.,
Appendix, p. xxviii, pl. 4, figs. 5a-c.
Carboniferous: Coyote Creek; north of Black Lake; and near Taos, New Mexico.
1884. *Soleniscus (Macrocheilus) ventricosus*. White, Proc. U. S. Nat. Mus., vol. 6,
p. 187, pl. 8, figs. 11, 12.
Carboniferous: Illinois.
1884. *Soleniscus (Macrocheilus) ventricosus*. White, 13th Rep. Geol. Surv. Ind.,
p. 155, pl. 34, figs. 11, 12.
Coal Measures: Illinois, Iowa, and New Mexico.
1889. *Soleniscus brevis*. Keyes, Am. Nat., vol. 23, p. 423, pl. 20, figs. 12-14.
1889. *Soleniscus brevis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 307.
1894. *Soleniscus brevis*. Keyes, Mo. Geol. Surv., vol. 5, p. 212.
Upper Coal Measures: Kansas City and Clinton, Missouri.

***Soleniscus carinatus* Stevens.**

1858. *Loxonema carinata*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 259.
Coal Measures: Danville, Illinois.
1889. *Soleniscus carinatus*. Keyes, Am. Nat., vol. 23, p. 423.
1889. *Soleniscus carinatus*. Keyes, Proc. Nat. Acad. Sci. Phil., p. 307.

Soleniscus cooperensis*. See *Sphærodroma cooperensis*.**Soleniscus fusiformis* Hall.**

1858. *Macrocheilus fusiformis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 718, pl. 29, fig. 7.
Coal Measures: Alpine Dam, Iowa.
1881. *Polyphemopsis fusiformis*. White, 2d Ann. Rep. Stat. and Geol. Ind., p. 519,
pl. 8, fig. 6.
Coal Measures: Newport, Indiana.
1884. *Soleniscus (Macrocheilus) fusiformis*. White, Proc. U. S. Nat. Mus., vol. 6,
p. 187, pl. 8, figs. 4-6.
Carboniferous: Illinois.
1884. *Soleniscus (Macrocheilus) fusiformis*. White, 13th Rep. Geol. Surv. Ind.,
p. 154, pl. 34, figs. 4-6.
Coal Measures: Illinois and Iowa.
1884. *Polyphemopsis* ? — ? White, 13th Rep. Geol. Surv. Ind., p. 164, pl. 32, fig. 6.
Coal Measures: Newport, Indiana.
1887. *Macrocheilus (Soleniscus) fusiformis* ? Herrick, Bull. Den. Univ., vol. 2,
p. 147, pl. 14, fig. 7.
Coal Measures: Flint Ridge, Ohio.
1888. *Macrocheilus fusiformis*. Herrick, Bull. Den. Univ., vol. 4, pl. 11, fig. 7.
Coal Measures: Fultonham, Ohio.
1889. *Soleniscus attenuatus*. Keyes, Am. Nat., vol. 23, p. 423, pl. 20, figs. 7-9.
1889. *Soleniscus* ? *attenuatus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 307.
1897. *Macrocheilus* conf. *fusiformis*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 41.
Lower Coal Measures: Conway County, Arkansas.

***Soleniscus gracilis* Cox.**

1857. *Macrocheilus gracilis*. Cox, Geol. Rep. Ky., vol. 3, p. 570, pl. 8, figs. 11, 11a.
Coal Measures: Bonharbour, Daviess County, Kentucky.
1888. *Macrocheilus gracilis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 239.
Lower Coal Measures: Des Moines, Iowa.
1889. *Soleniscus gracilis*. Keyes, Am. Nat., vol. 23, p. 423, pl. 20, fig. 6.
1889. *Soleniscus gracilis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 307.

Soleniscus gracilis Cox—Continued.

1891. *Soleniscus gracilis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 262.
Lower Coal Measures: Des Moines, Iowa.
1894. *Soleniscus gracilis*. Keyes, Mo. Geol. Surv., vol. 5, p. 211.
Lower Coal Measures: Clinton, Missouri.

Soleniscus hallanus Geinitz.

1866. *Macrocheilus Hallanum*. Geinitz, Carb. und Dyas in Nebr., p. 5, tab. 1,
fig. 7.
Wyoming, Nebraska.
1889. *Soleniscus hallanus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 308.

Soleniscus hildrethi Conrad.

1842. *Plectostylus hildrethi*. Conrad, Jour. Acad. Nat. Sci. Phil. (1), vol. 8, p. 275,
pl. 17, fig. 2.
Carboniferous, Flint Ridge, Ohio.

Soleniscus humilis Keyes.

1888. *Macrocheilus humilis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 239, pl. 12,
fig. 1.
Lower Coal Measures: Des Moines, Iowa.
1889. *Soleniscus humilis*. Keyes, Am. Nat., vol. 23, p. 423, pl. 20, fig. 4.
1889. *Soleniscus humilis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 308.
1891. *Soleniscus humilis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 262.
Lower Coal Measures: Des Moines, Iowa.
1892. *Soleniscus humilis*. Keyes, Proc. Iowa Acad. Sci., vol. 1, pt. 2, p. 23.
Lower Coal Measures: Near Des Moines, Iowa.

Soleniscus kansasensis Swallow.

1858. *Macrocheilus Kansasensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1,
p. 201.
Upper Coal Measures: Missouri and Kansas, Willow Springs, Kansas.
1889. *Soleniscus kansasensis*. Keyes, Am. Nat., vol. 23, p. 423.
1889. *Soleniscus kansasensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 308.

Soleniscus klipparti Meek.

1872. *Macrocheilus klipparti*. Meek, Proc. Acad. Nat. Sci. Phil. for 1871, p. 328.
Lower Coal Measures: Near Somerset, Perry County, Ohio.
1875. *Macrocheilus Klipparti*. Meek, Pal. Ohio, vol. 2, p. 346, pl. 20, figs. 6a-c.
Lower Coal Measures: Near Somerset, Perry County, Ohio.
1889. *Soleniscus klipparti*. Keyes, Am. Nat., vol. 23, p. 423, pl. 20, fig. 11.
1889. *Soleniscus klipparti*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 308.

Soleniscus medialis. See *Spharodoma medialis*.**Soleniscus missouriensis Swallow.**

1858. *Macrocheilus Missouriensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1,
p. 201.
Lower Coal Measures: Howard County, Missouri.
1894. *Soleniscus missouriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 211.
Upper Coal Measures: Kansas City, Missouri.

Soleniscus newberryi Stevens.

1858. *Loxonema Newberryi*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 259.
Coal Measures: Danville, Illinois.
1858. *Macrocheilus newberryi*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 719, pl. 29, fig. 9.
Coal Measures: Illinois.
1873. *Macrocheilus Newberryi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 594,
pl. 28, fig. 14.
Coal Measures: Danville, Illinois.

Soleniscus newberryi Stevens—Continued.

1884. *Soleniscus (Macrocheilus) newberryi*. White, Proc. U. S. Nat. Mus., vol. 6, p. 187, pl. 8, figs. 7, 8.
Carboniferous: Illinois.
1884. *Soleniscus (Macrocheilus) Newberryi*. White, 13th Rep. Geol. Surv. Ind., p. 153, pl. 34, figs. 7, 8.
Coal Measures: Danville, Illinois.
1888. *Macrocheilus newberryi*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 240.
Lower Coal Measures: Des Moines, Iowa.
1889. *Soleniscus newberryi*. Keyes, Am. Nat., vol. 23, p. 423, pl. 20, fig. 5.
1889. *Soleniscus newberryi*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 308.
1891. *Soleniscus newberryi*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 206.
Lower Coal Measures: Des Moines, Iowa.
1894. *Soleniscus newberryi*. Keyes, Mo. Geol. Surv., vol. 5, p. 212.
Upper Coal Measures: Kansas City, Missouri.

Soleniscus paludinaeformis Hall.

1868. *Macrocheilus paludinaeformis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 719, pl. 29, fig. 10.
Lower Coal Measures: Des Moines Valley, Iowa.
1884. *Soleniscus (Macrocheilus) paludinaeformis*. White, Proc. U. S. Nat. Mus., vol. 6, p. 187, pl. 8, fig. 17.
Carboniferous: Indiana.
1884. *Soleniscus (Macrocheilus) paludinaeformis*. White, 13th Rep. Geol. Surv. Ind., p. 154, pl. 34, fig. 17.
Coal Measures: Vermilion County, Indiana.
1888. *Macrocheilus paludinaeformis*. Herrick, Bull. Den. Univ., vol. 4, pl. 11, fig. 10.
Coal Measures: Fultonham, Ohio.
1889. *Soleniscus paludinaeformis*. Keyes, Am. Nat., vol. 23, p. 423, pl. 20, fig. 16.
1889. *Soleniscus paludinaeformis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 308.
1891. *Soleniscus paludinaeformis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 262.
Lower Coal Measures: Des Moines, Iowa.
1894. *Soleniscus paludinaeformis*. Keyes, Mo. Geol. Surv., vol. 5, p. 211.
Upper Coal Measures: Kansas City, Missouri

Soleniscus planus White.

1881. *Soleniscus planus*. White, U. S. Geog. Surv. W. 100 Merid., p. xxix, pl. 4, figs. 4a-c.
Carboniferous: Coyote Creek, and north of Black Lake, New Mexico.
1884. *Soleniscus planus*. White, Proc. U. S. Nat. Mus., vol. 6, p. 187, pl. 8, figs. 9, 10.
Carboniferous: Illinois.
1884. *Soleniscus planus*. White, 13th Rep. Geol. Surv. Ind., p. 153, pl. 34, figs. 9, 10.
Coal Measures: Danville, Illinois.
1887. *Soleniscus planus*. Herrick, Bull. Den. Univ., vol. 2, pl. 14, figs. 5, 6.
Coal Measures: Flint Ridge, Ohio.
1889. *Soleniscus planus*. Keyes, Am. Nat., vol. 23, p. 423, pl. 20, fig. 18.

Soleniscus ponderosus. See *Sphaerodoma ponderosa*.

Soleniscus primigenius. See *Sphaerodoma primogenia*.

Soleniscus regularis Cox.

1857. *Loxonema regularis*. Cox, Geol. Surv. Ky., vol. 3, p. 566, pl. 8, fig. 2.
Coal Measures: Daviess County, Kentucky.
1891. *Macrocheilus regularis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 600, pl. 15, fig. 13.
Coal Measures: Carbon Hill, Hocking County, Ohio.
1895. *Macrocheilus regularis*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 485, pl. 11, fig. 13.
Coal Measures: Carbon Hill, Hocking County, Ohio.

Soleniscus? terranovicus Dawson.

1883. *Macrocheilus Terranovicus*. Dawson, Rep. Peter Redpath Mus., No. 2, p. 14.
Lower Carboniferous L. S.: St. Georges Bay, Newfoundland.

Soleniscus texanus. See *Sphaerodoma texana*.**Soleniscus typicus Meek and Worthen.**

1860. *Soleniscus typicus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 467.
Upper Coal Measures: Springfield, Illinois.
1866. *Soleniscus typicus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 384, pl. 31,
figs. 15a, b.
Upper Coal Measures: Springfield, Missouri.
1884. *Soleniscus typicus*. White, Proc. U. S. Nat. Mus., vol. 6, p. 187, pl. 8,
figs. 18, 19.
Carboniferous.
1884. *Soleniscus typicus*. White, 13th Rep. Geol. Surv. Ind., p. 152, pl. 34,
figs. 18, 19.
Upper Coal Measures: Springfield, Illinois.
1889. *Soleniscus typicus*. Keyes, Am. Nat., vol. 23, p. 423, pl. 20, fig. 8.
1889. *Soleniscus typicus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 308.

Soleniscus ventricosus. See *Soleniscus brevis*.**Soleniscus? worthenanus Miller.**

1890. *Macrocheilus altonensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 143, pl. 24,
figs. 1, 1a. (Not *S. altonensis* Worthen, 1873.)
St. Louis L. S.: Alton, Illinois.
1889. *Macrochilina worthenanus*. Miller, N. A. Geol. and Pal., p. 409.

Soleniscus (species undetermined).

1858. *Macrocheilus spiratus*. McCoy, Swallow, Trans. St. Louis Acad. Sci., vol. 1,
p. 196.
Lower Permian: Kansas.
1884. *Macrocheilus* sp. ? Walcott, Pal. Eureka Dist., p. 260, pl. 24, fig. 8.
Lower Carboniferous: Eureka District, Nevada.
1887. *Macrocheilus* sp. ? Herrick, Bull. Den. Univ., vol. 2, p. 21, pl. 2, fig. 2.
Coal Measures: Flint Ridge, Ohio.
1887. *Macrocheilus* sp. ? Herrick, Bull. Den. Univ., vol. 2, pl. 3, fig. 1.
Coal Measures: Flint Ridge, Ohio.

SOLENOCARIS Meek, 1872.**Solenocaris sancti-ludovici Worthen.**

1884. *Solenocaris st. ludovici*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 3.
St. Louis L. S.: South St. Louis, Missouri.
1890. *Solenocaris sancti-ludovici*. Worthen, Geol. Surv. Ill., vol. 8, p. 153, pl. 28,
fig. 3.
St. Louis L. S.: South St. Louis, Missouri.
1894. *Soleniscus sancti-ludovici*. Keyes, Mo. Geol. Surv., vol. 4, p. 239.
St. Louis L. S.: St. Louis, Missouri.

Solenocaris strigata Meek.

1872. *Ceratiocaris (Solenocaris) strigata*. Meek, Proc. Acad. Nat. Sci. Phil. for
1871, p. 335.
Base of Waverly Group: Danville, Kentucky.
1875. *Ceratiocaris (Solenocaris) strigata*. Meek, Pal. Ohio, vol. 2, p. 321, pl. 18,
figs. 4a-c.
Waverly Group: Danville, Kentucky.

SOLENOCERAS Hyatt, 1883.

Solenoceras canaliculatum Cox.

1857. *Nautilus canaliculatus*. Cox, Geol. Rep. Ky., vol. 3, p. 575, pl. 10, figs. 3, 3a.
Coal Measures: Nolin Iron Works, Edmonson County, Kentucky.
1883. *Solenoceras canaliculatum*. Hyatt, Proc. Bost. Soc. Nat. Hist., vol. 22, p. 286.

SOLENOCHEILUS Meek and Worthen, 1870.

Solenocheilus blairi Miller.

1892. *Solenocheilus blairi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 75, pl. 12, fig. 2.
Chouteau L. S.: Pin Hook Bridge, 6 miles from Sedalia, Missouri.
1894. *Solenocheilus blairi*. Miller, 18th Rep. Geol. Surv. Ind., p. 329, pl. 12, fig. 2.
Chouteau L. S.: Pin Hood Bridge, 6 miles from Sedalia, Missouri.

Solenocheilus collectus Meek and Worthen.

1870. *Nautilus (Solenocheilus) collectus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 48.
St. Louis L. S.: New Providence, Indiana.
1873. *Nautilus (Solenocheilus) collectus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 544, pl. 23, figs. 3, 4.
St. Louis Group: Greencastle, Indiana, near Waterloo, Monroe County, Illinois.
1893. *Solenocheilus collectus*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 463, figs. 31, 32.
Carboniferous: Ballinger, Texas.

Solenocheilus henryvillense Miller and Gurley.

1897. *Solenocheilus henryvillense*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 51, pl. 4, figs. 4-6.
Knobstone Group: Near Henryville, Indiana.

Solenocheilus indianense Worthen.

1890. *Solenocheilus indianense*. Worthen, Geol. Surv. Ill., vol. 8, p. 150, pl. 28, figs. 1, 1a.
St. Louis L. S.: Greencastle, Indiana.
1893. *Solenocheilus indianensis*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 465.

Solenocheilus kentuckiensis Hyatt.

1893. *Solenocheilus kentuckiensis*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 461, figs. 28-30.
Carboniferous: Edmonson County, Kentucky.

Solenocheilus leidy Meek and Worthen.

1865. *Nautilus (Cryptoceras?) Leidy*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 262.
Keokuk Group: Warsaw, Illinois.
1873. *Nautilus (Solenocheilus) Leidy*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 524, pl. 18, fig. 2.
Keokuk Group: Warsaw, Illinois.

Solenocheilus rockfordensis. See *Oncodoceras rockfordense*.

SOLENOMYA Lamark, 1818.

Solenomya anodontoides Meek.

1875. *Solenomya ?? anodontoides*. Meek, Pal. Ohio, vol. 2, p. 339, pl. 19, fig. 11.
Coal Measures: Newark, Ohio.

Solenomya anodontoides Meek—Continued.

1866. *Solenomya anodontoides*. Claypole, Proc. and Call. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, pp. 241-247.

Lower Coal Measures: Wilkesbarre, Pennsylvania.

1887. *Solenomya? anodontoides*. Herrick, Bull. Den. Univ., vol. 2, p. 29, pl. 4, fig. 10.

Coal Measures: Flint Ridge, Ohio.

Solenomya biarmica de Verneuil.

1858. *Solemya Biarmica?* Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 190.

Upper Permian: Near Council Grove, Kansas.

Solenomya curta Walcott.

1884. *Solenomya curta*. Walcott, Pal. Eureka Dist., p. 242, pl. 22, figs. 6-11.

Lower Carboniferous: Eureka District, Nevada.

Solenomya cuyahogensis Herrick.

1888. *Solenomya?? cuyahogensis*. Herrick, Bull. Den. Univ., vol. 4, p. 115, pl. 10, fig. 1.

Waverly Group: Cuyahoga Falls, Ohio.

1895. *Solenomya (?) Cuyahogensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, fig. 25.

Cuyahoga Shale: Cuyahoga Falls, Ohio, 30 feet below conglomerate.

Solenomya iowensis Worthen.

1884. *Solenomya? iowensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 13. St. Louis L. S.: Near Pella, Iowa.

1890. *Solenomya? iowensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 132, pl. 19, figs. 5, 5a.

St. Louis L. S.: Near Pella, Iowa.

Solenomya meekiana Herrick.

1887. *Solenomya (?) meekiana*. Herrick, Bull. Den. Univ., vol. 2, p. 30, pl. 4, fig. 9.

Coal Measures: Flint Ridge, Ohio.

Solenomya monroensis Worthen.

1884. *Solenomya monroensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 13. Oolite beds of St. Louis L. S.: Fountain Creek, Monroe County, Illinois.

1890. *Solenomya monroensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 131, pl. 18, figs. 5, 5a.

St. Louis L. S. (oolite): Fountain Creek, Monroe County, Illinois.

Solenomya radiata Meek and Worthen.

1860. *Solemya radiata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 457.

Coal Measures: Grayville, Illinois.

1866. *Solenomya radiata*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 349, pl. 26, figs. 10a, b.

Coal Measures: Schuyler County, Illinois.

Solenomya recurvata Swallow.

1858. *Solemya (?) recurvata*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 208.

Upper Coal Measures: Clifton Park, Kansas.

Solenomya soleniformis Cox.

1857. *Solenimya soleniformis*. Cox, Geol. Rep. Ky., vol. 3, p. 573, pl. 9, fig. 5.

Coal Measures: Union County, Kentucky.

1888. *Solenomya soleniformis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 234.

Lower Coal Measures: Des Moines, Iowa.

Solenomya subradiata Herrick.

1887. *Solenomya subradiata*. Herrick, Bull. Den. Univ., vol. 2, p. 30, pl. 3, fig. 8.

Coal Measures: Flint Ridge, Ohio.

Solenomya varsoviensis Worthen.

1884. *Solenomya varsoviensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 12.
Keokuk L. S.: Warsaw, Illinois.
1890. *Solenomya varsoviensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 131, pl. 19, fig. 8.
Keokuk L. S.: Warsaw, Illinois.

Solenomya (species undetermined).

1872. *Solenomya* sp. Meek, U. S. Geol. Surv. Nebr., pl. 2, figs. 12a, b.
Upper Coal Measures: Rock Bluff, Nebraska.
1873. *Solenomya* (sp. undet.). Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 27,
figs. 1a, b.
1874. *Solenomya* (sp. undet.). Meek, Am. Jour. Sci. (3), vol. 7, p. 582.

SOLENOPSIS McCoy, 1844.**Solenopsis permianus** Swallow.

1858. *Solen (?) Permianus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 190.
Upper Permian: Near Smoky Hill Fork, Kansas.

Solenopsis scalpriformis Winchell.

1862. *Solen scalpriformis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 422.
Marshall Group: Marshall, Moscow, and near Napoleon, Michigan.
1869. *Solen scalpriformis*. Winchell, Safford's Geol. of Tenn., p. 445.
Shales just above Black Shale: Hickman and Maury counties, Tennessee.
1870. *Solen scalpriformis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 256.
Waverly Group: Tennessee.

Solenopsis solenoides Geinitz.

1866. *Clidophorus solenoides*. Geinitz, Carb. und Dyas in Nebr., p. 25, tab. 2,
fig. 7.
Nebraska City.
1872. *Solenopsis solenoides*. Meek, U. S. Geol. Surv. Nebr., p. 223, pl. 10, fig. 3.
Upper Coal Measures: Nebraska City, Nebraska.
Coal Measures: Illinois.
1894. *Solenopsis solenoides*. Keyes, Mo. Geol. Surv., vol. 5, p. 130.
Upper Coal Measures: Kansas City, Missouri.

SPATHELLA Hall, 1885.**Spathella ventricosa** White and Whitfield.

1862. *Orthonota ventricosa*. White and Whitfield, Proc. Bost. Soc. Nat. Hist.,
vol. 8, p. 297.
Chemung Group: Burlington, Iowa.
1885. *Spathella ventricosa*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 408, pl. 66, figs. 41, 42.
Yellow S. S.: Burlington, Iowa.
1888. *Spathella ventricosa?* Herrick, Bull. Den. Univ., vol. 4, p. 31, pl. 4, fig. 20.
Middle Waverly Group: Ohio.
1889. *Spathella ventricosa*. Herrick, Am. Geol., vol. 3, pl. 2, fig. 20.
1895. *Spathella ventricosa*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 18, fig. 20.
Keokuk: Granville, Ohio.

SPHÆRODOMA Keyes, 1889.**Sphærodoma cooperensis** Swallow.

1863. *Macrocheilus cooperensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 100.
Archimedes L. S.: Cooper County, Missouri.
1889. *Sphærodoma cooperensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 305.
1894. *Soleniscus cooperensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 210.
Keokuk L. S.: Cooper County, Missouri.

Sphærodoma intercalaris Meek and Worthen.

1860. *Macrocheilus intercalaris*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 467.
Upper Coal Measures: Springfield, Illinois.
1860. *Macrocheilus pulchellus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 467.
Upper Coal Measures: Springfield, Illinois.
1866. *Macrocheilus intercalaris*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 371, pl. 31, fig. 6a, b.
Upper Coal Measures: Springfield, Illinois; Pittsburg, Pa.
1872. *Macrocheilus intercalaris* var. *pulchellus*. Meek, U. S. Geol. Surv. Nebr., p. 228, pl. 6, fig. 8.
Upper Coal Measures: Near Nebraska City, Nebraska; Springfield, Illinois.
Coal Measures: Pittsburg, Pennsylvania.
Lower Coal Measures: West Virginia.

Sphærodoma littonana Hall.

1856. *Natica littonana*. Hall, Trans. Albany Inst., vol. 4, p. 30.
St. Louis L. S.: Bloomington, Indiana.
1882. *Macrocheilus Littonanum*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 72, pl. 8, fig. 28.
St. Louis Group: Bloomington, Indiana.
1883. *Macrocheilus* ? *Littonanus*. Hall, 12th Rep. Geol. Surv. Ind., p. 369, pl. 31, fig. 28.
St. Louis Group: Bloomington, Indiana.
1889. *Sphærodoma littonana*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 305.

Sphærodoma littonana var. *genevievensis* Meek and Worthen.

1866. *Naticopsis Littonana* var. *genevievensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 268.
Chester Group: Ste. Genevieve County, Missouri; Randolph County, Illinois.
1894. *Sphærodoma littonana*. Keyes, Mo. Geol. Surv., vol. 5, p. 214.
Kaskaskia L. S.: Ste. Genevieve, Missouri.

Sphærodoma medialis Meek and Worthen.

1860. *Macrocheilus medialis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 466.
Upper Coal Measures: Springfield, Illinois.
1866. *Macrocheilus medialis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 370, pl. 31, figs. 5a, b.
Upper Coal Measures: Springfield, Illinois.
1884. *Soleniscus* ? (*Macrocheilus*) *medialis*. White, Proc. U. S. Nat. Mus., vol. 6, p. 187, pl. 8, figs. 15, 16.
Carboniferous: Indiana.
1884. *Soleniscus* ? (*Macrocheilus*) *medialis*. White, 13th Rep. Geol. Surv. Ind., p. 156, pl. 34, figs. 15, 16.
Coal Measures: Vermilion County, Indiana.
1887. *Macrocheilus* sp. ? Herrick, Bull. Den. Univ., vol. 2, p. 21, pl. 2, fig. 16.
(*M. medialis* in explanation of plate.)
Coal Measures: Flint Ridge, Ohio.
1887. *Soleniscus medialis*. Herrick, Bull. Den. Univ., vol. 2, pl. 14, fig. 4.
Coal Measures: Flint Ridge, Ohio.
1889. *Sphærodoma medialis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 306.
1891. *Sphærodoma medialis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 262.
Lower Coal Measures: Des Moines, Iowa.
1894. *Sphærodoma medialis*. Keyes, Mo. Geol. Surv., vol. 5, p. 215.
Upper Coal Measures: Kansas City and Clinton, Missouri.

Sphaerodoma pinguis Winchell.

1863. *Macrocheilus pinguis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 21.
Yellow S. S.: Burlington, Iowa.
1889. *Sphaerodoma pinguis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 296.
Kinderhook Group: Burlington, Iowa.
1889. *Sphaerodoma pinguis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 306.
1894. *Sphaerodoma penguia*. Keyes, Mo. Geol. Surv., vol. 5, p. 213.
Burlington L. S.: Louisiana, Missouri.

Sphaerodoma ponderosa Swallow.

1858. *Macrocheilus ponderosus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 202.
Upper Coal Measures: Valley of Verdigris River, Kansas.
1884. *Soleniscus?* (*Macrocheilus*) *ponderosus?* White, Proc. U. S. Nat. Mus., vol. 6,
p. 187, pl. 8, figs. 1, 2.
Carboniferous: Southern Iowa.
1884. *Soleniscus?* (*Macrocheilus*) *ponderosus*. White, 13th Rep. Geol. Surv. Ind.,
p. 156, pl. 34, figs. 1, 2.
Upper Coal Measures: Iowa.
1888. *Macrocheilus ponderosus*. Herrick, Bull. Den. Univ., vol. 4, pl. 11, fig. 6.
Coal Measures: Fultonham, Ohio.
1889. *Sphaerodoma ponderosa*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 306.
1894. *Sphaerodoma ponderosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 213.
Coal Measures: Kansas City, Missouri.

Sphaerodoma primogenia Conrad.

1835. *Stylifer primogenia*. Conrad, Trans. Geol. Soc. Penn., vol. 1, pt. 2, p. 267,
pl. 12, fig. 2.
1836. *Fusus? inhabilis*. Morton, Am. Jour. Sci. (1), vol. 24, p. 150, pl. 3, fig. 14.
Coal Measures: Ohio Valley.
1855. *Macrocheilus inhabilis*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil.,
(2), vol. 2, p. 76, pl. 9, figs. 9a, b.
Coal Measures: Graysville and Galatia, Illinois; Posey County, Indiana.
1858. *Macrocheilus primigenius*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 720, pl. 29,
fig. 11.
Coal Measures: Ohio, Indiana, Illinois, and Iowa.
1884. *Soleniscus?* (*Macrocheilus*) *primigenius?* White, Proc. U. S. Nat. Mus., vol. 6,
p. 187, pl. 8, fig. 3.
Carboniferous: Illinois.
1884. *Soleniscus?* (*Macrocheilus*) *primigenius*. White, 13th Rep. Geol. Surv. Ind.,
p. 157, pl. 34, fig. 3.
Coal Measures: Ohio, Indiana, Illinois, and Iowa.
1886. *Macrocheilus primigenius*. Heilprin, 2d Geol. Surv. Penn., Ann. Rep. for
1885, p. 446, fig. 16; p. 457, fig. 16a.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Macrocheilus primigenius*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol.
Soc., vol. 2, pt. 2, p. 274, fig. 16; p. 276, fig. 16a.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1889. *Sphaerodoma primogenia*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 306.
1894. *Sphaerodoma primogenia*. Keyes, Mo. Geol. Surv., vol. 5, p. 215.
Upper Coal Measures: Kansas City, Missouri.
1897. *Macrocheilus (Soleniscus) primigenius*. Smith, Proc. Am. Phil. Soc., vol. 35,
p. 41.
Lower Coal Measures: Conway County, Arkansas.

Sphaerodoma subcorpulenta Whitfield.

1882. *Macrocheilus subcorpulentus*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 224.
Maxville L. S.: Newtonville, Ohio.

Sphærodoma subcorpulenta Whitfield—Continued.

1889. *Sphærodoma subcorpulenta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 306.
 1891. *Macrocheilus subcorpulentus*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 591, pl. 14, fig. 14.
 Maxville L. S.: Newtonville, Ohio.
 1895. *Macrocheilus subcorpulentus*. Whitfield, Geol. Surv. Ohio, vol. 7 p. 478, pl. 10, fig. 14.
 Maxville L. S.: Newtonville, Ohio.

Sphærodoma texana Shumard.

1859. *Macrocheilus Texanus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 402.
 Coal Measures: Four miles west of Sierra Hueco, El Paso County, Texas.
 1884. *Soleniscus (Macrocheilus) texanus*. White, Proc. U. S. Nat. Mus., vol. 6, p. 187, pl. 8, figs. 13, 14.
 Coal Measures: Illinois.*
 1884. *Soleniscus (Macrocheilus) Texanus*. White, 13th Rep. Geol. Surv. Ind., p. 155, pl. 34, figs. 13, 14.
 Coal Measures: Danville, Illinois.
 1889. *Sphærodoma texana*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 306.

Sphærodoma (species undetermined).

1866. *Macrocheilus* (undt). Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 372, pl. 27, fig. 10.
 Upper Coal Measures: Bridge over north branch of Saline River, Gallatin County, Illinois.

(SPHENOPOTERIUM Meek and Worthen, 1860.)

Sphenopoterium compressum Meek and Worthen. See *Palæacis compressus*.

Sphenopoterium cuneatum Meek and Worthen. See *Palæacis cuneiformis*.

Sphenopoterium enorme Meek and Worthen. See *Palæacis enormis*.

Sphenopoterium enorme var. *depressum* Meek and Worthen. See *Palæacis enormis* var. *depressus*.

Sphenopoterium obtusum Meek and Worthen. See *Palæacis obtusus*.

SPHENOTUS Hall, 1885.

Sphenotus æolus Hall.

- *1870. *Sanguinolites Æolus*. Hall, Prelim. Not. Lamell., 2, p. 46.
 Waverly S. S.: Newark, Ohio.
 1875. *Sanguinolites æolus*. Meek, Pal. Ohio, vol. 2, p. 307, pl. 16, figs. 1a-c.
 Cuyahoga Shale: Medina County and Newark, Ohio.
 1884. *Sanguinolites Æolus*. Walcott, Pal. Eureka Dist., p. 247, pl. 20, figs. 6, 7, 9.
 Lower Carboniferous: Eureka District, Nevada.
 1885. *Sphenotus Æolus*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 404, pl. 66, figs. 31-35.
 Waverly S. S.: Newark, Ohio.
 1888. *Sanguinolites æolus*. Herrick, Bull. Den. Univ., vol. 3, p. 70, pl. 8, figs. 1, 11.
 Waverly Group: Licking County, Ohio.

Sphenotus contractus Hall.

1843. *Cypriocardia contracta*. Hall, Geol. Surv. N. Y., Rep. 4th Dist., p. 292, tab. 139, fig. 4.
 Near Panama, Chautauqua County, New York.
 Bull. 153—37

Sphenotus contractus Hall—Continued.

1885. *Sphenotus contractus*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 399, pl. 66, figs. 1, 3-9, 11-13, 15 (10, 16, 17, 19†), pl. 94, fig. 2.
Chemung Group: New York and Pennsylvania.
1888. *Sanguinolites (Sphenotus) contractus*. Herrick, Bull. Den. Univ., vol. 3, p. 69, pl. 12, fig. 4.
Waverly Group: Licking County, Ohio.
1888. *Sphenotus contractus*. Herrick, Bull. Den. Univ., vol. 4, p. 31.
Waverly Group: Ohio.
1895. *Sphenotus contractus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 22.
Cuyahoga Shale: Moot's Run, Ohio.

Sphenotus flavius Hall.

- *1870. *Sanguinolites ? flavius*. Hall, Prelim. Not. Lamell., 2, p. 47.
Waverly S. S.: Licking County, Ohio.
1885. *Sphenotus flavius*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 403, pl. 66, figs. 27-29.
Waverly S. S.: Licking County, Ohio.
1888. *Sanguinolites (Sphenotus) flavius ?* Herrick, Bull. Den. Univ., vol. 3, p. 69, pl. 9, fig. 10.
Waverly Group: Licking County, Ohio.

Sphenotus rigidus White and Whitfield.

1862. *Cypricardia ? rigida*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 300.
Chemung Group: Burlington, Iowa.
1870. *Cypricardia (?) rigida*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 256.
Waverly Group: Newark, Ohio.
1885. *Sphenotus rigidus*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 402, pl. 66, fig. 14.
Yellow S. S.: Burlington, Iowa.

Sphenotus signatus Hall.

1885. *Sphenotus signatus*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 405, pl. 94, fig. 3.
Waverly Group: Warren, Pennsylvania.

Sphenotus sinuatus Miller and Gurley.

1896. *Sphenotus sinuatus*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 9, pl. 2, figs. 29, 30.
Chouteau L. S.: Near Sedalia, Missouri.

Sphenotus telamon Hall.

1885. *Sphenotus Telamon*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 406, pl. 94, fig. 1.
Chouteau L. S.: Cooper County, Missouri.

Sphenotus valvulus Hall.

- *1870. *Sanguinolites valvulus*. Hall, Prelim. Not. Lamell., 2, p. 46.
Waverly S. S.: Newark, Ohio.
1885. *Sphenotus valvulus*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 403, pl. 66, fig. 30.
Waverly S. S.: Newark, Licking County, Ohio.
1888. *Sphenotus valvulus*. Herrick, Bull. Den. Univ., vol. 4, pl. 4, fig. 1.
Waverly Group: Ohio.
1889. *Sphenotus valvulus*. Herrick, Am. Geol., vol. 3, pl. 2, fig. 1.
1895. *Sphenotus valvulus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 1.
Upper Cuyahoga Shale: Ohio.

Sphenotus (species undetermined).

1888. *Sphenotus (Cypricardia)*. Herrick, Bull. Den. Univ., vol. 4, pl. 6, fig. 4.
Waverly Group: Ohio.
1895. *Sphenotus (Cypricardia ?)* sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 17, fig. 4.
Upper Cuyahoga Shale: Licking County, Ohio.

SPHRAGIOPORA Ulrich, 1890.

Sphragiopora parasitica Ulrich.

1890. *Sphragiopora parasitica*. Ulrich, Geol. Surv. Ill., vol. 8, p. 638, pl. 65, figs. 6, 6a.

Chester Group: Chester, Illinois.

1894. *Sphrogopora parasitica*. Keyes, Mo. Geol. Surv., vol. 5, p. 33.
Kaskaskia L. S.: Chester, Illinois.

SPIRIFER Sowerby, 1815.

Spirifer aciculiferus. See *Spiriferina aciculifera*.

Spirifer acuticostatus De Koninck.

1843. *Spirifer acuticostatus*. De Koninck, Desc. Anim. Foss. Carb. Terr. Belg., p. 265, pl. 17, figs. 6 a-c.

1863. *Spirifera acuticostata*. Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 171, pl. 9, figs. 7, 8.

Lower Carboniferous L. S.: Brookfield, Shubenacadie, etc., Nova Scotia.

1868. *Spirifer acuticostata*. Dawson, Acad. Geol., p. 292, fig. 91.

Carboniferous L. S.: Brookfield, Shubenacadie, etc., Nova Scotia.

Spirifer agelaius Meek.

1873. *Spirifer agelaius*. Meek, U. S. Geol. Surv. Mont., Idaho, Wyo., and Utah, p. 470.

Carboniferous: "Old Baldy," near Virginia City, Montana.

1880. *Spirifer agelaius*. White, Cont. to Inv. Pal., No. 6, p. 135, pl. 34, figs. 10a, b.
Carboniferous: "Old Baldy" Mountain, Virginia City, Montana.

Spirifer albapinenensis Hall and Whitfield.

1877. *Spirifera Alba-pinenensis*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 255, pl. 4, figs. 7, 8.

Near base of Wahsatch L. S.: Dry Canyon, Oquirrh Mountains, Logan and Ogden Canyons, Wahsatch range, Utah.

Carboniferous: White Pine District, Nevada.

Spirifer annectans Walcott.

1884. *Spirifera annectans*. Walcott, Pal. Eureka Dist., p. 216, pl. 18, figs. 7, 7a.

Lower Carboniferous: Eureka District, Nevada.

Spirifer attenuatus. See *Spirifer keokuk*.

Spirifer bifurcatus Hall.

1856. *Spirifer bifurcata*. Hall, Trans. Albany Inst., vol. 4, p. 8.

St. Louis L. S.: Spergen Hill, Indiana.

1882. *Spirifera bifurcata*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 47, pl. 6, figs. 13-15.

St. Louis Group: Spergen Hill, Indiana.

1883. *Spirifera bifurcata*. Hall, 12th Rep. Geol. Surv. Ind., p. 326, pl. 29, figs. 13-15.

St. Louis Group: Spergen Hill, Indiana.

Spirifer biplicatus Hall.

1858. *Spirifer biplicatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 519, pl. 7, figs. 5a, b.

Chemung Group: Burlington, Iowa; Quincy, Illinois.

1870. *Spirifera biplicata?* Winchell, Proc. Am. Phil. Soc., vol. 11, p. 252.

Waverly Group: Sciotoville, Ohio.

1875. *Spirifer (Trigonotreta) biplicatus?* Meek, Pal. Ohio, vol. 2, p. 290, pl. 14, fig. 5.

Waverly Group: Richfield, Ohio.

Spirifer buplicatus Hall—Continued.

1888. *Spirifer buplicatus*. Herrick, Bull. Den. Univ., vol. 3, p. 45.
Waverly Group: Licking County, Ohio.
1888. *Spirifer buplicatus*. Herrick, Bull. Den. Univ., vol. 4, p. 25, pl. 2, fig. 8; pl. 10, figs. 17, 18.
Waverly Group: Cuyahoga Falls, Ohio.
1895. *Spirifer buplicatus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 15, fig. 8.
Upper Layers of Waverly Group: Newark, Ohio.

Spirifer boonensis Swallow.

1890. *Spirifer Boonensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 646.
Lower Coal Measures: Boone, Randolph, and Monroe counties, Missouri.

Spirifer cameratus Morton.

1836. *Spirifer cameratus*. Morton, Am. Jour. Sci. (1), vol. 29, p. 150, pl. 2, fig. 3.
Coal Measures: Ohio Valley.
1852. *Spirifer triplicata*. Hall, Stansb. Exped. Gt. Salt Lake, p. 410, pl. 4, figs. 5a-e.
Carboniferous: Missouri River above Weston.
1852. *Spirifer fasciger*? Owen, Geol. Rep. Wis., Iowa, and Minn., tab. 5, fig. 4.
Carboniferous: Missouri River, near mouth of Keg Creek, and Plattsburg, Missouri.
1852. *Spirifer meusebachanus*. Roemer, Kreid. von Texas, p. 88, taf. 11, figs. 7a-c.
Carboniferous: San Saba Valley, about 20 miles below the old Spanish Forts, Texas.
1856. *Spirifer cameratus*. Hall, Pac. R. R. Rep., vol. 3, p. 102, pl. 2, figs. 9, 12, 13.
Carboniferous: Pecos Village, New Mexico.
1858. *Spirifer cameratus*. Hall, Geol. Iowa, vol. 1, pt. 2, pl. 709, pl. 28, figs. 2a, b.
Coal Measures: Ohio; Illinois; Iowa; Missouri; Nebraska; Santa Fé and Pimas Village, New Mexico.
1859. *Spirifer cameratus*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 27.
Upper Coal Measures: Kansas.
1859. *Spirifer cameratus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 391.
Permian S. S. and White L. S.: Guadalupe Mountains.
1861. *Spirifer cameratus*. Newberry, Ives's Colo. Expl. Exped., p. 127.
Upper Carboniferous L. S.: Santa Fé and Pecos Village, New Mexico.
1868. *Spirifer*. Rogers, Geol. Rep. Penn., p. 833, fig. 694.
1872. *Spirifer cameratus*. Meek, U. S. Geol. Surv. Nebr., p. 183, pl. 6, fig. 12; pl. 8, fig. 15.
Upper Coal Measures: Nebraska City, Nebraska.
Coal Measures: Eastern Ohio; West Virginia; Pennsylvania; Iowa; Kansas; Texas; New Mexico.
1873. *Spirifer cameratus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 573, pl. 25, fig. 7.
Coal Measures: Illinois.
1873. *Spirifer*, young of *S. cameratus*? Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 25, figs. 6a-c.
Coal Measures.
1874. *Spirifera camerata*. Derby, Bull. Cornell Univ. (Sci.), vol. 1, No. 2, p. 12, pl. 1, figs. 1, 3, 6, 9, 14; pl. 2, figs. 2, 15; pl. 4, fig. 5; pl. 5, fig. 11.
Coal Measures: Bomjardim and Itaituba, Brazil.
1876. *Spirifer cameratus*. White, Powell's Rep. Geol. Uinta Mts., p. 90.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1876. *Spirifer cameratus*. Newberry, U. S. Expl. Exped., Santa Fé to Grand and Green rivers, p. 138.
Upper Carboniferous: New Mexico and Utah.
1876. *Spirifer camerata*. Meek, Simpson's Expl. Gt. Basin Utah, p. 353, pl. 2, figs. 3a, b.

Spirifer cameratus Morton—Continued.

Yellow L. S. (Upper Carboniferous?): Summit Spring Pass, east of Zuny Valley, etc.

1877. *Spirifer (Trigonotreta) cameratus*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 91, pl. 9, figs. 2, 2a.

Carboniferous L. S.: Fossil Hill, White Pine District; Ruby Group, Nevada. Also, latitude 39° 33' north, longitude 115° 12' west.

1877. *Spirifer cameratus*. White, U. S. Geol. Surv. W. 100 Merid., vol. 4, p. 132, pl. 10, figs. 1a-d.

Carboniferous: Fossil Hill, White Pine County; Ely range; Old Potosi Mine, Lincoln County; and Egan range, 35 miles south of Egan Pass, Nevada; Camp Apache, Maricopa County; Salt River; confluence of White Mountain and Black Rivers; and Canyon Butte, Arizona, Oquirrh range, near Camp Floyd; Lake range on Fairfield road; west face of Oquirrh range; north Fork of Lewiston Canyon, Oquirrh range; cliff east of Bellevue; Meadow Creek, south of Fillmore; North Star District, Picacho range; near Beckwith Spring, Cedar range; Rock Canyon, Wasatch range, near Provo; and Virgin range, southwest of Saint George, Utah.

1881. *Spirifer cameratus*. White, 2d Ann. Rep. Dept. Stat. and Geol. Ind., p. 517, pl. 8, fig. 3.

Coal Measures: Waterman, Parke County, Indiana.

1883. *Spirifera camerata*. Hall, Rep. N. Y. State Geol. for 1882, pl. (32) 57, figs. 9-15.

Coal Measures: Ohio; Illinois; Iowa; Missouri, etc.

1884. *Spirifer cameratus*. White, 13th Rep. Geol. Surv. Ind., p. 132, pl. 35, figs. 3-5. Coal Measures: Indiana.

1887. *Spirifera camerata*. Herrick, Bull. Den. Univ., vol. 2, p. 45, pl. 2, fig. 22.

Coal Measures: Flint Ridge, Ohio.

1888. *Spirifera camerata*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 230.

Lower Coal Measures: Des Moines, Iowa.

1894. *Spirifer cameratus*. Hall and Clarke, Int. Study of Brach., pt. 2, pl. 26, figs. 7, 8.

Coal Measures: Missouri; Illinois.

1894. *Spirifera camerata*. Keyes, Mo. Geol. Surv., vol. 5, p. 83, pl. 40, figs. 5a-c.

Coal Measures: Clinton, Kansas City, and Lexington, Missouri.

1895. *Spirifer cameratus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 32, figs. 9-15.

Coal Measures: Ohio and Illinois.

1897. *Spirifer cameratus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 31.

Upper Coal Measures: Sebastian County, Arkansas; Poteau Mountains, Indian Territory.

Lower Coal Measures: Conway County, Arkansas.

Spirifer cameratus var. kansasensis Swallow.

1866. *Spirifer cameratus* var. *kansasensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 409.

Upper Coal Measures: Kansas.

Spirifer cameratus var. percrassus Swallow.

1866. *Spirifer cameratus* var. *percrassus*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 409.

Upper Coal Measures: Missouri and Kansas.

Spirifer carteri. See *Syringothyris carteri* and *Syringothyris textus*.

Spirifer centronatus Winchell.

1865. *Spirifera centronata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 118.

Marshall Group: Cuyahoga Falls and Akron, Ohio.

Spirifer centronatus Winchell—Continued.

1874. *Spirifer centronata*. White, Prelim. Rep. Inv. Foss., p. 17.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
1877. *Spirifer centronatus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 86,
pl. 5, figs. 8a-c.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
1877. *Spirifera centronata*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4,
p. 254, pl. 4, figs. 5, 6.
Near base of Wahsatch L. S. (Waverly?): Dry Canyon, Oquirrh Mountains; Logan and Ogden Canyons, Wahsatch range, Utah.

Spirifer clarus. See *Reticularia clara*.**Spirifer clavatulus** McChesney.

1861. *Spirifer claratula*. McChesney, Desc. New Pal. Foss., p. 84.
Burlington L. S.: Burlington, Iowa.
1865. *Spirifer claratula*. McChesney, Ill. New Spec. Foss., pl. 6, figs. 5a, b.
1868. *Spirifera claratula*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 36,
pl. 6, figs. 5a, b.
Burlington L. S.: Burlington, Iowa.

Spirifer contractus. See *Martinia contracta*.**Spirifer cooperensis**. See *Reticularia cooperensis*.**Spirifer cuspidatus**. See *Syringothyris carteri*.**Spirifer deltoideus** Herrick.

1888. *Spirifer deltoideus*. Herrick, Bull. Den. Univ., vol. 4, p. 27, pl. 2, fig. 7.
Waverly Group: Granville, Ohio.
1895. *Spirifer deltoideus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 15, fig. 7.
Waverly Conglomerate (Kinderhook): Granville, Ohio.

Spirifer desideratus Walcott.

1884. *Spirifera desiderata*. Walcott, Pal. Eureka Dist., p. 217, pl. 7, fig. 8.
Lower Carboniferous: Eureka District, Nevada.

Spirifer duplicicostus Phillips.

1836. *Spirifera duplicicosta*. Phillips, Geol. Yorksh., vol. 2, p. 218, pl. 10, fig. 1.
Carboniferous: England.
1878. *Spirifera duplicicosta*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34,
p. 628.
Carboniferous L. S.: Feilden Isthmus, latitude 82° 43'.

Spirifer extenuatus. See *Syringothyris extenuatus*.**Spirifer fasciger**. See *Spirifer cameratus*.**Spirifer fastigatus** Morton.

1836. *Spirifer fastigatus*. Morton, Am. Jour. Sci. (1), vol. 29, p. 152, pl. 14, fig. 35.
Coal Measures: Ohio Valley.

Spirifer fastigatus Meek and Worthen. See *Spirifer mortonanus*.**Spirifer fimbriatus** Morton.

1836. *Spirifer fimbriatus*. Morton, Am. Jour. Sci. (1), vol. 29, p. 150, pl. 2, fig. 1.
Coal Measures: Ohio Valley.

Spirifer forbesi Norwood and Pratten.

1855. *Spirifer Forbesii*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2),
vol. 2, p. 73, pl. 9, figs. 3a-c.
Middle of Mountain L. S.: Burlington, Iowa.
1858. *Spirifer forbesi*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 600, pl. 13, fig. 1.
Burlington L. S.: Burlington, Iowa.

Spirifer forbesi Norwood and Pratten—Continued.

1894. *Spirifera forbesi*. Keyes, Mo. Geol. Surv., vol. 5, p. 80, pl. 40, fig. 3.
Burlington L. S.: Hannibal, Louisiana, Sedalia, and Springfield, Missouri.
1895. *Spirifer Forbesi*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 37, fig. 18.
Burlington L. S.: Burlington, Iowa.

Spirifer fultonensis Worthen.

1873. *Spirifer Fultonensis*. Worthen, Geol. Surv. Ill., vol. 5, p. 572, pl. 25, fig. 5.
Lower Coal Measures: Fulton County, Illinois.

Spirifer glabrus. See *Martinia glabra*.**Spirifer glabrus** var. *contractus*. See *Martinia contractus*.**Spirifer grimesi** Hall.

1858. *Spirifer grimesi*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 604, pl. 14, figs. 1-5.
Burlington L. S.: Burlington, Iowa; Quincy and Jersey Landing, Illinois.
1878. *Spirifera* sp. allied to *S. Grimesi* Hall. Etheridge, Quart. Jour. Geol. Soc.
Lond., vol. 34, p. 628, pl. 25, fig. 5.
Carboniferous: Feilden Isthmus, latitude 82° 43'.
1883. *Spirifera Grimesi*. Hall, Rep. N. Y. State Geol. for 1882, pl. (31) 56, figs.
8, 16-19.
Burlington L. S.: Burlington, Iowa.
1894. *Spirifera grimesi*. Keyes, Mo. Geol. Surv., vol. 5, p. 79.
Chouteau L. S.: Hannibal, Louisiana, and Sedalia, Missouri.
Burlington L. S.: Palmyra, Hannibal, Louisiana, Sedalia, Springfield, and
Ste. Genevieve, Missouri.
1895. *Spirifer Grimesi*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 30, figs. 8,
16-19.
Burlington L. S.: Burlington, Iowa.

Spirifer guadalupensis. See *Reticularia guadalupensis*.**Spirifer hannibalensis**. See *Syringothyris carteri*.**Spirifer hemiplicata**. See *Enteleles hemiplicata*.**Spirifer hirtus**. See *Reticularia cooperensis*.**Spirifer imbrex** Hall.

1858. *Spirifer imbrex*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 601, pl. 13, fig. 2.
Burlington L. S.: Burlington, Iowa.
1883. *Spirifera imbrex*. Hall, Rep. N. Y. State Geol. for 1882, pl. (31) 56, figs.
11, 12.
Burlington L. S.: Burlington, Iowa.
1894. *Spirifer imbrex*. Hall and Clarke, Int. Study of Brach., pt. 2, pl. 27, fig. 1.
Burlington L. S.: Burlington, Iowa.
1894. *Spirifera imbrex*. Keyes, Mo. Geol. Surv., vol. 5, p. 80.
Burlington L. S.: Hannibal and Louisiana, Missouri.
1895. *Spirifer imbrex*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 31, figs. 11, 12.
Burlington L. S.: Burlington, Iowa.

Spirifer inæquicostus Owen.

1852. *Spirifer inæquicostis*. Owen, Geol. Rep. Wis., Iowa, and Minn., p. 586, tab. 5,
fig. 6.
Carboniferous L. S.: Iowa.

Spirifer incertus Hall.

1858. *Spirifer incertus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 602, pl. 13, fig. 3.
Burlington L. S.: Burlington, Iowa.

Spirifer increbescens Hall.

1858. *Spirifer increbescens*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 706, pl. 27, figs. 6 a-i.
Kaskaskia L. S.: Kaskaskia and Chester, Illinois.

Spirifer increbescens Hall—Continued.

1883. *Spirifera increbescens*. Hall, Rep. N. Y. State Geol. for 1882, pl. (30) 55, figs. 27-30, pl. (31) 56, figs. 1-3.
Chester L. S.: Illinois.
1888. *Spirifer increbescens*. Herrick, Bull. Den. Univ., vol. 4, pl. 11, fig. 14, 23.
Chester L. S.: Ohio.
Coal Measures: Licking County, Ohio.
1894. *Spirifer increbescens*. Hall and Clarke, Int. Study of Brach., pt. 2, pl. 27 figs. 8-11.
Chester L. S.: Chester, Illinois.
1894. *Spirifera increbescens*. Keyes, Mo. Geol. Surv., vol. 5, p. 82.
Kaskaskia L. S.: Ste. Mary, Missouri.
1895. *Spirifer increbescens*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 30, figs. 27-30, pl. 31, figs. 1-3.
Chester L. S.: Chester, Illinois.

Spirifer increbescens var. americana Swallow.

1866. *Spirifer increbescens* var. *Americana*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 410.
Kaskaskia L. S.: Missouri and Illinois.

Spirifer increbescens var. transversalis Hall.

1858. *Spirifer increbescens* var. *transversalis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 708
Kaskaskia L. S.

Spirifer keilhavii von Buch.

1855. *Spirifer Keilhavii*. Salter, Belcher's "Last of the Arctic Voyages," p. 386, pl. 36, figs. 9-11.
Carboniferous: Depot Point, Exmouth Island.

Spirifer kelloggi Swallow.

1863. *Spirifer Kelloggi*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 86.
Lower Keokuk L. S.
1894. *Spirifera kelloggi*. Keyes, Mo. Geol. Surv., vol. 5, p. 81.
Keokuk L. S.: Keokuk, Iowa.

Spirifer kentuckensis. See Spiriferina kentuckensis.**Spirifer kentuckensis var. propatulus. See Spiriferina kentuckensis var. propatulus.****Spirifer keokuk Hall.**

1852. *Spirifer attenuatus*. Owen, Geol. Rep. Wis., Iowa., and Minn., tab. 5, tab. 3A, fig. 8.
Lower Carboniferous L. S.: Skunk River, Iowa.
Carboniferous L. S.: Keokuk Rapids of the Mississippi.
1858. *Spirifer keokuk*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 642, pl. 20, figs. 3a-d, 2d.
Keokuk L. S.: Keokuk, Iowa; Nauvoo and Warsaw, Illinois.
1858. *Spirifer keokuk* var. Hall, Geol. Iowa, vol. 1, pt. 2, p. 676, pl. 24, figs. 4a-d.
St. Louis L. S.: Mouth of Lizard Creek, Webster County, Iowa.
1876. *Spirifer Keokuk* (?). Meek, Bull. U. S. Geol. and Geog. Surv. Terr., vol. 2, p. 355, pl. 1, figs. 3, 3a.
Carboniferous: Kootenay Range of Rocky Mountains.
1883. *Spirifera Keokuk*. Hall, Rep. N. Y. State Geol. for 1882, pl. (30) 55, figs. 21-24.
Keokuk and St. Louis L. S.: Keokuk, Iowa; Lizard Creek, Iowa; Marion County, Iowa.
1888. *Spirifer keokuk*. Herrick, Bull. Den. Univ., vol. 4, p. 114.
Waverly Group: Rushville and Londonville, Ohio.

Spirifer keokuk Hall—Continued.

1891. *Spirifer Rockymontana?* Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 584, pl. 13, fig. 20.
 Maxville L. S.: Newtonville, Ohio.
1894. *Spirifer Keokuk.* Hall and Clarke, Int. Study of Brach., pt. 2, pl. 27, figs. 14, 15.
 Keokuk Group: Keokuk, Iowa.
1894. *Spirifera keokuk.* Keyes, Mo. Geol. Surv., vol. 5, p. 81, pl. 40, fig. 2.
 Keokuk L. S.: Wayland, Missouri; Keokuk, Iowa.
1895. *Spirifera Rockymontana?* Whitfield, Geol. Surv. Ohio, vol. 7, p. 471, pl. 9, fig. 20.
 Maxville L. S.: Newtonville, Ohio.
1895. *Spirifer Keokuk.* Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 30, figs. 21-24.
 Keokuk Group: Keokuk, Lizard Creek, and Marion County, Iowa.
1895. *Spirifer Keokuk* var. ? Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 37, figs. 13-15.
 St. Louis Group: Southern Indiana?
1897. *Spirifer keokuk.* Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 257, pl. 18, figs. 10-12.
 Batesville S. S.: Batesville, Arkansas.

Spirifer keokuk var. shelbyensis Swallow.

1866. *Spirifer keokuk* var. *Shelbyensis.* Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 410.
 Archimedes L. S.: Shelby County, Missouri.

Spirifer lævigatus. See *Spirifer logani*.

Spirifer laminosus. See *Spiriferina kentuckensis*.

Spirifer lateralis Hall.

1858. *Spirifer lateralis.* Hall, Geol. Iowa, vol. 1, pt. 2, p. 661, pl. 23, figs. 7a-c.
 Warsaw L. S.: Clifton, Illinois.
1883. *Spirifera lateralis?* Hall, Rep. N. Y. State Geol. for 1882, pl. (32) 57, figs. 1-3.
 Warsaw L. S.: Warsaw, Illinois.
1895. *Spirifer lateralis.* Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 32, figs. 1-3; pl. 37, fig. 19.
 Warsaw L. S.: Warsaw and Clifton, Illinois.

Spirifer latior Swallow.

1863. *Spirifer latior.* Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 86.
 Chouteau L. S.: Cooper County, Missouri.

Spirifer leidy Norwood and Pratten.

1855. *Spirifer Leidy.* Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 72, pl. 9, figs. 2a-c.
 Upper Mountain L. S.: Chester, Illinois.
1883. *Spirifera Leidy.* Hall, Rep. N. Y. State Geol. for 1882, pl. (30) 55, figs. 25, 26.
 Chester L. S.: Chester, Illinois.
1884. *Spirifera Leidy.* Walcott, Pal. Eureka Dist., p. 216, pl. 18, figs. 4, 4a.
 Lower Carboniferous: Eureka District, Nevada.
1894. *Spirifer Leidy.* Hall and Clarke, Int. Study of Brach., pt. 2, pl. 27, figs. 16, 17.
 Chester L. S.: Chester, Illinois.
1894. *Spirifera leidy.* Keyes, Mo. Geol. Surv., vol. 5, p. 82.
 Kaskaskia L. S.: Ste. Mary, Missouri.
 St. Louis L. S.: Ste. Genevieve, Missouri.

Spirifer leidyi Norwood and Pratten—Continued.

1895. *Spirifer Leidyi*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 30, figs. 25, 26.
Chester L. S.: Chester, Illinois.

Spirifer leidyi var. *chesterensis* Swallow.

1886. *Spirifer Leidyi* var. *Chesterensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 409.
Ste. Genevieve L. S.

Spirifer leidyi var. *merimacensis* Swallow.

1866. *Spirifer Leidyi* var. *Merimacensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 410.
Archimedes L. S.: Barrett's Station, Missouri.

Spirifer lineatoides. See *Reticularia lineatoides*.**Spirifer lineatus**. See *Reticularia perplexa*.**Spirifer lineatus** var. *perplexus*. See *Reticularia perplexa*.**Spirifer lineatus** var. *striato-lineatus*. See *Reticularia perplexa*.**Spirifer littoni** Swallow.

1860. *Spirifer Littoni*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 646.
St. Louis L. S.: St. Louis County, Missouri.

Spirifer logani Hall.

1858. *Spirifer logani*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 647, pl. 20, fig. 7; pl. 21, figs. 1a, b, 2.
Keokuk L. S.: Near Nauvoo, Illinois.
1863. *Spirifer lævigatus*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 86.
Keokuk L. S.: Iowa and Missouri.
1869. *Spirifera Logani?* Winchell, Safford's Geol. Tenn., p. 442.
Immediately above Black Shale: Manchester, Cannon County, Tennessee.
1883. *Spirifera Logani*. Hall, Rep. N. Y. State Geol. for 1882, pl. (32) 57, figs. 7, 8.
1894. *Spirifer Logani*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 26, fig. 10.
Keokuk L. S.: Near Nauvoo, Illinois.
1894. *Spirifera logani*. Keyes, Mo. Geol. Surv., vol. 5, p. 81.
Keokuk L. S.: Wayland and St. Francisville, Missouri; Keokuk, Iowa.
1895. *Spirifer Logani*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 32, figs. 7, 8.
Keokuk L. S.: Near Nauvoo, Illinois.

Spirifer marionensis Shumard.

1855. *Spirifer Marionensis*. Shumard, Geol. Rep. Mo., p. 205, pl. C, figs. 8a, b.
Chemung Group: Chouteau Springs, Cooper County; Hannibal, Marion County; Louisiana, Pike County; and Moniteau County, Missouri.
1858. *Spirifer marionensis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 511, pl. 6, figs. 1a-c.
Hamilton Group: Louisiana and Hannibal, Missouri.
1870. *Spirifera Marionensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 252.
Waverly Group: Sciotoville, Ohio.
1883. *Spirifera Marionensis*. Hall, Rep. N. Y. State Geol. for 1882, pl. (31) 56, fig. 15.
1888. *Spirifer marionensis*. Herrick, Bull. Den. Univ., vol. 3, p. 43, pl. 1, fig. 3; pl. 6, figs. 2-5; pl. 7, fig. 11; pl. 9, fig. 1.
Waverly Group: Licking County, Ohio.
1888. *Spirifer marionensis*. Herrick, Bull. Den. Univ., vol. 4, p. 26, pl. 2, figs. 2, 2a.
Waverly Group: Portsmouth, Ohio.
1894. *Spirifer Marionensis*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 27, fig. 3.
Chouteau L. S.: Pike County, Missouri.

***Spirifer marionensis* Shumard—Continued.**

1894. *Spirifera marionensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 78, pl. 40, figs. 1a, b. Kinderhook Group: Chouteau Springs, Hannibal, Louisiana, and Clarksville, Missouri.
1895. *Spirifer marionensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 15, figs. 2, 2a. Cuyahoga Shale: Portsmouth, Ohio.
1895. *Spirifer Marionensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 31, fig. 15. Chouteau L. S.: Pike County, Missouri.

***Spirifer meeki* Swallow.**

1860. *Spirifer Meekii*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 645. Encrinital L. S.: Pettis, Saline, and other counties in Missouri.

Spirifer meusebachanus*. See *Spirifer cameratus*.**Spirifer mexicana* Shumard.**

1858. *Spirifer Mexicanus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 293. White Permian L. S.: Guadalupe Mountains.
1859. *Spirifer Mexicanus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 390, pl. 11, fig. 4. White Permian L. S.: Guadalupe Mountains.

***Spirifer missouriensis* Swallow.**

1860. *Spirifer Missouriensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 643. Chouteau L. S.: Cooper County, Missouri.

***Spirifer mortonanus* Miller.**

1870. *Spirifer fastigatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 36. (Not *S. fastigatus* Morton, 1836.) Keokuk Group: Crawfordsville, Indiana.
1875. *Spirifer fastigatus*. Meek and Worthen, Geol. Surv. Ill., vol. 6, p. 521, pl. 30, fig. 3. Keokuk Group: Crawfordsville, Indiana.
1883. *Spirifera mortonana*. Miller, Am. Pal. Foss., 2d ed., p. 298.
1895. *Spirifer Mortonanus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 38, figs. 18, 19. Keokuk Group: Crawfordsville, Indiana.

***Spirifer multigranosus* Worthen.**

1890. *Spirifer multigranosa*. Worthen, Geol. Surv. Ill., vol. 8, p. 105, pl. 11, figs. 5, 5b. Coal Measures: Roll's Ford, Sangamon County, Illinois.

***Spirifer mundulus* Rowley.**

1893. *Spirifera mundula*. Rowley, Am. Geol., vol. 12, p. 307, pl. 14, figs. 10-12. Lower Burlington L. S.: Louisiana, Missouri.

***Spirifer mysticensis* Meek.**

1873. *Spirifer Mysticensis*. Meek, U. S. Geol. Surv. Mont., Idaho, Wyo., and Utah, p. 466. Carboniferous: Outlet of Mystic Lake, Montana.

***Spirifer neglectus* Hall.**

1858. *Spirifer neglectus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 643, pl. 20, fig. 5. Keokuk L. S.: Keokuk, Iowa; Warsaw, Illinois.
1875. *Spirifer neglectus*. Meek and Worthen, Geol. Surv. Ill., vol. 6, p. 523, pl. 30, figs. 1c, 2a. Keokuk L. S.: Warsaw, Hamilton, and Nauvoo, Illinois; Keokuk, Iowa.
1884. *Spirifera neglecta*. Walcott, Pal. Eureka Dist., p. 217, pl. 18, fig. 10. Lower Carboniferous: Eureka District, Nevada.

***Spirifer newberryi* Hall.**

1883. *Spirifera Newberryi*. Hall, Rep. N. Y. State Geol. for 1882, pl. (31) 56, figs. 9, 10.
Waverly Group: Ohio.
1884. *Spirifer Newberryi*. Hall, 13th Ann. Rep. N. Y. State Geol., p. 649.
Waverly Group: Ohio.
1895. *Spirifer Newberryi*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, p. 362, pl. 31, figs. 9, 10.
Waverly Group: Ohio.
1897. *Spirifer Newberryi*. Hall, 14th Rep. N. Y. State Geol., p. 357, pl. 7, figs. 25, 26.
Waverly Group: Ohio.

Spirifer norwoodanas*. See *Spiriferina norwoodana*.**Spirifer nova-mexicanus* Miller.**

1881. *Spirifera novamexicana*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 314, pl. 7, figs. 10-10b.
Subcarboniferous: Lake Valley Mining District, New Mexico.

Spirifer octoplicatus*. See *Spiriferina kentuckensis*.**Spirifer optimus*. See *Spirifer rockymontanus*.*****Spirifer organensis* Shumard.**

1863. *Spirifer Organensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 2, p. 108.
Coal Measures: Oregon Mountains, near Fort Filmore, New Mexico.

***Spirifer osagensis* Swallow.**

1860. *Spirifer Osagensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 641.
Chemung Rocks: Pettis County, Missouri.

***Spirifer ovalis* Phillips.**

1878. *Spirifera ovalis*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 629.
Carboniferous: Feilden Isthmus, latitude 82° 43'.

***Spirifer peculiaris* Shumard.**

1855. *Spirifer ? peculiaris*. Shumard, Geol. Rep. Mo., p. 202, pl. C, figs. 7a, b.
Chemung Group: Chouteau Springs, Cooper County, Missouri.
1874. *Spirifer (Martinia) peculiaris*. White, Prelim. Rep. Inv. Foss., p. 17.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
1877. *Spirifer (Martinia) peculiaris*. White, U. S. Geol. Surv. W. 100 Merid., vol. 4, p. 90, pl. 5, figs. 7a, b.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
1894. *Spirifera peculiaris*. Keyes, Mo. Geol. Surv., vol. 5, p. 79.
Kinderhook L. S.: Chouteau Springs, Missouri.

Spirifer perplexus*. See *Reticularia perplexa*.**Spirifer planoconvexus*. See *Ambocelia planoconvexa*.*****Spirifer plenus* Hall.**

1858. *Spirifer plenus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 603, pl. 13, figs. 4a-d.
Burlington L. S.: Burlington, Iowa; 9 miles below Iowa City, Iowa;
Quincy, Illinois.
1890. *Syringothyris ? plena*. Schuchert, 9th Ann. Rep. N. Y. State Geol., p. 37.
Burlington L. S.: Burlington, Iowa; Quincy, Illinois; Pike County,
Missouri.
1894. *Syringothyris plena*. Keyes, Mo. Geol. Surv., vol. 5, p. 88, pl. 40, fig. 8.
Burlington L. S.: Hannibal, Missouri.
1895. *Spirifer plenus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 37, figs. 32, 33.
Burlington L. S.: Burlington, Iowa.

Spirifer propinquus*. See *Syringothyris textus*.**Spirifer pseudolineatus*. See *Reticularia pseudolineata*.**

Spirifer pulchrus. See *Spiriferina pulchra*.

Spirifer rockymontanus Marcou.

1858. *Spirifer rocky-montana*. Marcou, Geol. N. A., p. 50, pl. 7, figs. 4-4e.
Mountain L. S.: Tigerus, New Mexico.
1858. *Spirifer opimus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 711, pl. 28, figs. 1a, b.
Coal Measures: Ohio, Maryland, Iowa, etc.
1860. *Spirifer subretricus*. McCheaney, Desc. New Pal. Foss., p. 44.
Coal Measures: Big Creek, Indiana, near New Harmony.
1861. *Spirifer Rockymontani*. Newberry, Ives's Colo. Expl. Exped., p. 127.
Upper Carboniferous L. S.: New Mexico.
1865. *Spirifer subretricus*. McCheaney, Ill. New Spec. Foss., pl. 1, figs. 4a, b.
1868. *Spirifer opimus*. McCheaney, Trans. Chicago Acad. Sci., vol. 1, p. 35, pl. 1, figs. 4a, b.
Coal Measures: Big Creek, near New Harmony, Indiana.
1874. *Spirifera opima*. Derby, Bull. Cornell Univ. (Sci.), vol. 1, No. 2, p. 15, pl. 1, fig. 4; pl. 2, fig. 7; pl. 4, fig. 12.
Coal Measures: Bomjardim, Paredao, and Itaituba, Brazil.
1875. *Spirifer (Trigonotreta) opimus?* Meek, Pal. Ohio, vol. 2, p. 329, pl. 19, figs. 14a-c.
Coal Measures: Ohio; Illinois; Iowa; Missouri; West Virginia, and Rocky Mountains.
1876. *Spirifer Rockymontanus*. White, Powell's Rep. Geol. Uinta Mts., p. 90.
Lower Aubrey Group: Split Mountain Canyon and near Echo Park, Utah.
Upper Aubrey Group: Beehive Point, near Horseshoe Canyon, Utah.
1877. *Spirifer (Trigonotreta) opimus?* Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 88, pl. 9, fig. 6.
Carboniferous L. S.: Six miles south of Promontory Station, Promontory Mountains, Railroad Canyon, Moleen Peak; Mount Nebo in Utah; Fossil Hill, White Pine District.
1877. *Spirifer rockymontanus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 134, pl. 11, figs. 9a-d.
Carboniferous: North Fork of Lewiston Canyon, Oquirrh range, and on west face of Oquirrh range, Utah; near Santa Fé, New Mexico.
1883. *Spirifera opima*. Hall, Rep. N. Y. State Geol. for 1882, pl. (31) 56, figs. 4-7.
Coal Measures: Iowa; Brazil, South America.
1887. *Spirifera opima*. Herrick, Bull. Den. Univ., vol. 2, p. 44, pl. 2, fig. 23.
Coal Measures: Flint Ridge, Ohio.
1888. *Spirifera rockymontana*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 231.
Lower Coal Measures: Des Moines, Iowa.
1894. *Spirifer opimus*. Hall and Clarke, Int. Study of Brach., pt. 2, pl. 27, figs. 12, 13.
Coal Measures: Iowa.
1894. *Spirifera rockymontana*. Keyes, Mo. Geol. Surv., vol. 5, p. 84.
Upper Coal Measures: Kansas City, Missouri.
1895. *Spirifer opimus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 31, figs. 4-7.
Coal Measures: Iowa; Bomjardim, Brazil.
1879. *Spirifer rockymontanus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 32.
Lower Coal Measures: White County and Crawford County, Arkansas.

See also *Spirifer keokuk*.

Spirifer rostellatus Hall.

1858. *Spirifer rostellatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 641, pl. 20, figs. 2a-c.
Keokuk L. S.: Skunk River, Iowa.
1894. *Spirifera rostellata*. Keyes, Mo. Geol. Surv., vol. 5, p. 82.
Keokuk L. S.: Bonaparte, Iowa.
1895. *Spirifer rostellatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 32, fig. 5.
Keokuk Group: Skunk River, Iowa.

Spirifer rostratus Morton.

1836. *Spirifer rostratus*. Morton, Amer. Jour. Sci. (1), vol. 29, p. 152, pl. 14, fig. 34.
Coal Measures: Ohio Valley.

Spirifer scobinus Meek.

1860. *Spirifera scobina*. Meek, Proc. Acad. Nat. Sci. Phil., p. 310.
Upper Carboniferous?: Divide between Long and Ruby valleys, latitude 40°, longitude 115° 20'.
1876. *Spirifer (Spiriferina?) scobina*. Meek, Simpson's Exp. Gt. Basin Utah, p. 351, pl. 2, figs. 5a-c.
Yellow L. S. (Upper Carboniferous?): Between Long and Ruby valleys.
1877. *Spirifer (Trigonotreta) scobina*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 90, pl. 9, figs. 1-1d.
Carboniferous L. S.: Latitude 40° north, longitude 115° 20' west, Nevada.

Spirifer semiplicatus. See *Reticularia cooperensis*.

Spirifer setigerus. See *Reticularia setigera*.

Spirifer sillanus Winchell.

1865. *Spirifera Sillana*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 119.
Marshall Group: Valley Forge, one-half mile below Cuyahoga Falls, Ohio.

Spirifer spinosus. See *Spiriferina spinosa*.

Spirifer striatiformis Meek.

1875. *Spirifer (Trigonotreta) striatiformis*. Meek, Pal. Ohio, vol. 2, p. 289, pl. 14, figs. 8a-c.
Waverly Group: Sciotoville, Ohio.
1888. *Spirifer striatiformis*. Herrick, Bull. Den. Univ., vol. 3, p. 44, pl. 1, fig. 6; pl. 3, figs. 23, 26; pl. 6, figs. 6, 7; pl. 12, fig. 20.
Waverly Group: Licking County, Ohio.
1888. *Spirifer striatiformis*. Herrick, Bull. Den. Univ., vol. 4, pl. 2, fig. 9.
Waverly Group: Newark, Ohio.
1895. *Spirifer striatiformis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 15, fig. 9.
Upper Layers of Waverly Group: Newark, Ohio.

Spirifer striatus Martin.

1858. *Spirifer striatus*. Marcou, Geol. N. A., p. 49, pl. 7, figs. 2, 2a.
Mountain L. S.: Pecos Village, Tigras, and summit of the Sierra de Sandia, New Mexico; Salt Lake City, Utah; Shasta County, California; Vancouver Island; Ohio; Kentucky; Tennessee; Indiana; Illinois; Iowa; Missouri; Arkansas.
1858. *Spirifer striatus?* var. Hall, Geol. Iowa, vol. 1, pt. 2, p. 647.
Keokuk L. S.
1868. *Spirifera striata*. Dawson, Acad. Geol., p. 301.
Carboniferous L. S.: Windsor, Nova Scotia.
1874. *Spirifer striatus*. White, Prelim. Rep. Inv. Foss., p. 17.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
1877. *Spirifera striata*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 269, pl. 5, figs. 13-15.
Lower Carboniferous L. S. Snowstorm Hill, Dry Canyon, Oquirrh Mountains, Utah.
1877. *Spirifer striatus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 134, and p. 88, pl. 5, fig. 10a.
Carboniferous: Fort Bayard, New Mexico; North Star District, Picacho range, Utah.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
1887. *Spirifer striata?* Herrick, Bull. Den. Univ., vol. 2, pl. 2, fig. 24.
Coal Measures: Flint Ridge, Ohio.

Spirifer striatus var. **triplicatus** Marcon.

1858. *Spirifer striatus* var. *triplicatus*. Marcon, Geol. N. A., p. 49, pl. 7, fig. 3.
Mountain L. S.: Pecos Village, Tigras, on the summit of the Sierra de
Sandia, New Mexico; Great Salt Lake; Vancouver Island.

Spirifer subæqualis Hall.

1858. *Spirifer subæqualis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 663, pl. 23, figs. 9a-c.
Warsaw L. S.: Warsaw, Illinois.
1883. *Spirifera subæqualis*. Hall, Rep. N. Y. State Geol. for 1882, pl. (31) 56,
figs. 13, 14.
Warsaw L. S.: Warsaw, Illinois.
1894. *Spirifer subæqualis*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 27,
fig. 2.
Warsaw L. S.: Warsaw, Illinois.
1895. *Spirifer subæqualis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 31,
figs. 13, 14.
Warsaw L. S.: Warsaw, Illinois.

Spirifer subcardiiformis Hall.

1858. *Spirifer subcardiiformis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 660, p. 23,
figs. 6a, b.
Warsaw L. S.: Above Alton, Illinois.
1880. *Spirifer subcardiiformis*. White, Cont. to Inv. Pal., No. 8, p. 165, pl. 41,
figs. 2a-c.
Warsaw Group: Alton, Illinois; Spergen Hill, Indiana.

Spirifer subcuspidatus. See *Syringothyris textus*.**Spirifer subelliptica**. See *Spiriferina subelliptica*.**Spirifer suborbicularis** Hall.

1858. *Spirifer suborbicularis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 644.
Keokuk L. S.: Keokuk, Iowa; Warsaw, Illinois.
1875. *Spirifer suborbicularis*. Meek and Worthen, Geol. Surv. Ill., vol. 6, p. 523,
pl. 30, fig. 1.
Keokuk L. S.: Warsaw, Hamilton, Nauvoo, and Niota, Illinois; Keokuk,
Iowa.

Spirifer subrotundatus Hall.

1858. *Spirifer subrotundatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 521, pl. 7, figs. 8a, b.
Chemung Group: Burlington, Iowa.
1870. *Spirifera subrotundata*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 252.
Waverly Group: Sciotoville, Ohio.
1894. *Spirifera subrotundata*. Keyes, Mo. Geol. Surv., vol. 5, p. 78.
Chouteau L. S.: Sedalia, Missouri.

Spirifer subventricosus. See *Spirifer rockymontanus*.**Spirifer sulciferus** Shumard.

1858. *Spirifer sulciferus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 293.
White Permian L. S.: Guadalupe Mountains.
1859. *Spirifer sulciferus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 391,
pl. 11, fig. 3.
White Permian L. S.: Guadalupe Mountains.

Spirifer taneyensis Swallow.

1860. *Spirifer Taneyensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 645.
Chemung Rocks: Taney County, Missouri.
1894. *Spirifera taneyensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 78.
Kinderhook Group: Taney County, Missouri.

Spirifer temerarius. See *Reticularia temeraria*.

Spirifer tenuicostus Hall.

1858. *Spirifer tenuicostus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 662, pl. 23, figs. 8a-c.
Keokuk and Warsaw L. S.: Keokuk, Iowa; Warsaw and Dallas, Illinois.

Spirifer tenuimarginatus Hall.

1858. *Spirifer tenuimarginatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 641, pl. 20, figs. 1a-c.
Keokuk L. S.: Warsaw, Illinois.
1883. *Spirifera tenuimarginata*. Hall, Rep. N. Y. Stat. Geol. for 1882, pl. (32) 57, figs. 4-6.
Keokuk Group: Keokuk, Iowa.
1895. *Spirifer tenuimarginatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 32, figs. 4, 6.
Keokuk Group: Keokuk, Iowa.

Spirifer tenuispinatus*. See Reticularia tenuispinata.*Spirifer texanus Meek.**

1871. *Spirifer (Trigonotreta?) texanus*. Meek, Proc. Acad. Nat. Sci. Phil., p. 179.
Coal Measures: Young County, Texas.
1876. *Spirifer (Trigonotreta?) Texanus*. Newberry, U. S. Expl. Exped. from Santa Fe to Grand and Green rivers, p. 139, pl. 3, figs. 5-5b.
Coal Measures: Young County and Jack County, Texas; West Fork of Trinity River, Texas.
1894. *Spirifer Texana*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 26, fig. 9.
Coal Measures: Missouri.
1895. *Spirifer Texanus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 37, figs. 16, 17.
Carboniferous L. S.: Graham County, Texas.

Spirifer textus*. See Syringothyris textus.**Spirifer translatus*. See Reticularia translata.*****Spirifer transversus*. See Spiriferina transversa.****Spirifer trigonalis Martin.**

1884. *Spirifer trigonalis*. Walcott, Pal. Eureka Dist., p. 215, pl. 18, fig. 11.
Lower Carboniferous: Eureka District, Nevada.

Spirifer triplicatus*. See Spirifer cameratus.*Spirifer vernonensis Swallow.**

1860. *Spirifera Vernonensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 644.
Chemung rocks: St. Louis County, Missouri.
1865. *Spirifer Vernonensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 119.
Sulphur Springs, Missouri.

***Spirifer vernonensis* var. *ozarkensis* Swallow.**

1860. *Spirifer Vernonensis* var. *Ozarkensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 644.
Chemung Rocks: Taney County, Missouri.

Spirifer waverlyensis Winchell.

1870. *Spirifera Waverlyensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 251.
Waverly Group.

Spirifer winchelli Herrick.

1888. *Spirifer winchelli*. Herrick, Bull. Den. Univ., vol. 3, p. 46, pl. 1, fig. 1, pl. 2, fig. 16; pl. 5, figs. 2, 3.
Waverly Group: Licking County, Ohio.
1895. *Spirifer winchelli*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 21, figs. 2, 3.
Lower part of Burlington, above Conglomerate II: Ohio.

Spirifer (species undetermined).

1848. *Spirifer*. Christy, Letters on Geol., pl. 5, figs. 1-4.
Sandstone above black slate: Elk River, Tennessee.
1854. *Spirifer* (undet.). Shumard, Marcy's Expl. Red River of Louis., p. 177, pl. 1, fig. 3.
Carboniferous: Washington County, Arkansas.
1855. *Spirifer* (undet.). Schiel, Pac. R. R. Rep., vol. 2, p. 108, pl. 1, fig. 5.
Carboniferous L. S.: Near Westport.
1858. *Spirifer* — (n. s.). Hall, Geol. Iowa, vol. 1, pt. 2, p. 647.
Keokuk L. S.
1859. *Spirifer* —. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 28.
Upper Coal Measures: Above Fort Riley, Kansas.
1877. *Spirifer* — sp. ? Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 271, pl. 5, fig. 16.
Weber Quartzite: Bear River, Uinta Range, Utah.
1877. *Spirifera* (?) cf. *S. disjuncta*. Whiteaves, Geol. Surv. Canada, Rep. of Prog. 1875-76, p. 100.
Devonian or Carboniferous: Fossil Point, Peace River, Canada.
1877. *Spirifera* — (f). Whiteaves, Geol. Surv. Canada, Rep. of Prog. 1875-76, p. 101.
Devonian or Carboniferous: Fossil Point, Peace River, Canada.
1878. *Spirifera* sp. allied to *S. lamellosa* McCoy. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 629.
Carboniferous: Feilden Isthmus, latitude 82° 43'.
1887. *Spirifera* sp. ? Herrick, Bull. Den. Univ., vol. 2, p. 46, pl. 2, fig. 6.
Coal Measures: Flint Ridge, Ohio.
1888. *Spirifer* sp. ? Herrick, Bull. Den. Univ., vol. 3, pl. 1, fig. 2.
Waverly Group: Licking County, Ohio.
1888. *Spirifer* sp. (cf. *S. varicosta* Con.). Herrick, Bull. Den. Univ., vol. 3, p. 46, pl. 1, fig. 5.
Waverly Group: Licking County, Ohio.
1888. *Spirifer* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 7, fig. 24.
Waverly Group: Licking County, Ohio.
1888. *Spirifer* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 9, fig. 19.
Waverly Group: Licking County, Ohio.
1888. *Spirifer* (resembling *altus*). Herrick, Bull. Den. Univ., vol. 4, pl. 2, figs. 3, 10.
Waverly Group: Moot's Run, Licking County, Ohio.
1888. *Spirifer* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 2, fig. 6.
Waverly Group: Newark, Ohio.
1888. *Spirifer* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 19.
Waverly Group: Cuyahoga Falls, Ohio.
1895. *Spirifer*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 46, fig. 22.
Waverly Group: Richfield, Ohio.
1895. *Spirifer* sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 14, fig. 6.
Keokuk division of Waverly Group: Newark, Ohio.
1895. *Spirifer* (like *S. altus*). Herrick, Geol. Surv. Ohio, vol. 7, pl. 15, figs. 3-10.
Waverly Group: Moot's Run, Licking County, Ohio.

SPIRIFERINA D'Orbigny, 1847.**piriferina aciculifera Rowley.**

1893. *Spirifera aciculifera*. Rowley, Am. Geol., vol. 12, p. 307, pl. 14, figs. 13, 14.
(*Spiriferina* in Expl. of Plate.)
Louisiana (Lithographie) L. S.: Louisiana, Missouri.
Bull. 153—38

***Spiriferina billingsi* Shumard.**

1858. *Spiriferina Billingsii*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 294.
White Permian L. S.: Guadalupe Mountains, and at mouth of Delaware
Creek, New Mexico.
1859. *Spiriferina Billingsii*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 391.
White and Dark Permian L. S.: Guadalupe Mountains.

***Spiriferina binacuta* Winchell.**

1865. *Spiriferina binacuta*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 120.
Base of Burlington, L. S.: Burlington, Iowa.

***Spiriferina clarksvillensis* Winchell.**

1865. *Spiriferina Clarksvillensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 119.
Lithographic L. S.: Clarksville, Missouri.
1894. *Spiriferina clarksvillensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 85.
Louisiana L. S.: Clarksville, Mo.

***Spiriferina cristata*.**

1863. *Spiriferina cristata*. Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 170,
pl. 9, fig. 6.
Lower Carboniferous L. S.: Windsor, Brookfield, Shubenacadie, Debert
River, and East River, Nova Scotia.
1868. *Spiriferina cristata*. Dawson, Acad. Geol., p. 291, fig. 90.
Carboniferous L. S.: Windsor, Brookfield, Shubenacadie, Debert River,
and East River, Nova Scotia.
1884. *Spiriferina cristata*. Walcott, Pal. Eureka Dist., p. 218, pl. 18, figs. 12, 13.
Lower Carboniferous: Eureka District, Nevada.
- See also *Spiriferina kentuckiensis*.

***Spiriferina depressa* Herrick.**

1888. *Spiriferina depressa*. Herrick, Bull. Den. Univ., vol. 3, p. 47, pl. 10, fig. 3.
Waverly Group: Licking County, Ohio.

***Spiriferina kentuckiensis* Shumard.**

1852. *Spirifer octoplicatus?* Hall, Stansb. Exped. to Gt. Salt Lake, p. 409, pl. 4,
figs. 4a, b.
Carboniferous: Missouri River, near Weston.
1855. *Spirifer Kentuckensis*. Shumard, Geol. Rep. Mo., p. 203.
Coal Measures: On the Missouri River near Weston, and Grayson County,
Kentucky.
1856. *Spirifer kentuckensis*. Hall, Pac. R. R. Rep., vol. 3, p. 102, pl. 2, figs. 10, 11.
Carboniferous: Pecos Village, New Mexico.
1859. *Spirifer Kentuckensis*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 27.
Upper Coal Measures: Leavenworth, Kansas.
1866. *Spirifer laminaeus*. Geinitz, Carb. und Dyas in Nebr., p. 45, tab. 3, figs. 19a-d.
Plattsmouth and Nebraska City, Nebraska.
1872. *Spiriferina Kentuckensis*. Meek, U. S. Geol. Surv. Nebr., p. 185, pl. 6, figs.
3a-d; pl. 8, figs. 11a, b.
Upper Coal Measures: Nebraska City, Nebraska.
Coal Measures: Kentucky, Illinois, Missouri, Iowa, Nebraska, Kansas,
Texas, New Mexico.
1876. *Spiriferina Kentuckensis*. White, Powell's Rep. Geol. Uinta Mts., p. 90.
Lower and Upper Aubrey Group: Confluence of Grand and Green Rivers,
Utah.
1877. *Spiriferina Kentuckensis*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4,
p. 138, pl. 10, figs. 4a-c.
Carboniferous: Santa Fé, New Mexico; Meadow Creek, south of Fillmore,
Utah; Camp Apache, Arizona.

***piriferina kentuckiensis* Shumard—Continued.**

1883. *Spirifera (Spiriferina) Kentuckiensis*. Hall, Rep. N. Y. State Geol. for 1882, pl. (36) 61, figs. 14–16.

Coal Measures.

1884. *Spiriferina Kentuckensis*. White, 13th Rep. Geol. Surv. Ind., p. 135, pl. 35, figs. 13, 14.

Middle and Upper Coal Measures: Vermilion, Vigo, Knox, Gibson, Posey, Vanderburg, Dubois, and Spencer counties, Indiana.

1888. *Spiriferina kentuckensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 231.

Lower Coal Measures: Des Moines, Iowa.

1894. *Spiriferina kentuckensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 86.

Upper Coal Measures: Kansas City and Lexington, Missouri.

1895. *Spiriferina Kentuckiensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 29, fig. 17; pl. 36, figs. 14–16.

Coal Measures: Vinton County, Ohio; Illinois.

1897. *Spiriferina cristata*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 32.

Lower Coal Measures: Conway County, Arkansas.

Upper Coal Measures: Sebastian County, Arkansas, and Poteau Mountain, Indian Territory.

***piriferina kentuckiensis* var. *propatula* Swallow.**

1886. *Spiriferina Kentuckensis* var. *propatulus*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 409.

Upper Coal Measures: Missouri.

***piriferina norwoodana* Hall.**

1856. *Spirifer norwoodana*. Hall, Trans. Albany Inst., vol. 4, p. 7.

St. Louis L. S.: Spergen Hill, Indiana; Alton, Illinois.

1882. *Spiriferina Norwoodana*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 48, pl. 6, figs. 16, 17.

St. Louis Group: Spergen Hill, Indiana; Alton, Illinois.

1883. *Spiriferina norwoodana*. Hall, 12th Rep. Geol. Surv. Ind., p. 327, pl. 29, figs. 16, 17.

St. Louis Group: Alton, Illinois; Spergen Hill, Indiana.

***piriferina octoplicata* Sowerby.**

1874. *Spiriferina spinosa* var. *campestris*. White, Prelim. Rep. Surv. Inv. Foss., p. 21.

Carboniferous (Coal Measures): Near Santa Fé, New Mexico; Camp Cottonwood, Lincoln County, Nevada.

1877. *Spiriferina octoplicata*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 139, pl. 10, figs. 8a–c.

Carboniferous: Near Santa Fé, New Mexico; Camp Cottonwood, Lincoln County, Nevada.

1878. *Spiriferina cristata?* var. *octoplicata*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 629.

Carboniferous: Cape Joseph Henry, latitude 82° 43'.

1888. *Spiriferina octoplicata?* Herrick, Bull. Den. Univ., vol. 3, pl. 7, fig. 16.

Waverly Group: Licking County, Ohio.

***piriferina pulchra* Meek.**

1860. *Spirifera pulchra*. Meek, Proc. Acad. Nat. Sci. Phil., p. 310.

Upper Carboniferous: East and west sides of Long Valley, and Pass east of Ruby Valley, latitude 40°, longitude 115° 20'.

1864. *Spiriferina pulchra*. Meek, Pal. Up. Mo., p. 19.

Nevada Territory.

1876. *Spirifer (Spiriferina) pulchra*. Meek, Simpson's Exp. Gt. Basin, Utah, p. 352, pl. 2, figs. 1a–h.

***Spiriferina pulchra* Meek—Continued.**

1876. Yellow L. S. (Upper Carboniferous): Long Valley and Ruby Valley.
 1877. *Spiriferina pulchra*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 85, pl. 8, figs. 1-1e, pl. 12, figs. 12-12d.
 Carboniferous L. S.: Nevada, latitude 40° north, longitude 115° 20' west;
 White Pine County, Nevada, 25 miles northeast of Hamilton, Ruby
 Group; mouth of Weber Canyon.

***Spiriferina solidirostris* Winchell.**

1865. *Spiriferina solidirostris*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 120.
 Base of Burlington L. S.: Burlington, Iowa; Hamburg, Illinois.
 1870. *Spiriferina solidirostris*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 252.
 Waverly Group: Newark, Sciotoville, and Rockville, Ohio.
 1888. *Spiriferina solidirostris*. Herrick, Bull. Den. Univ., vol. 3, p. 47, pl. 1, fig. 8;
 pl. 2, figs. 9-11; pl. 5, fig. 13.
 Waverly Group: Licking County, Ohio.
 1895. *Spiriferina solidirostris*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 21, fig. 13.
 Burlington: Ohio.

***Spiriferina spinosa* Norwood and Pratten.**

1855. *Spirifer spinosus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2),
 vol. 3, p. 71, pl. 9, figs. 1a-d.
 Top of Mountain L. S.: Chester, Illinois; Pope County, Illinois; and in
 Missouri opposite Hat Island.
 1856. *Spiriferina spinosa*. Hall, Trans. Albany Inst., vol. 4, p. 8.
 St. Louis L. S.: Bloomington, Indiana; Alton, Illinois.
 1858. *Spirifer spinosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 706, pl. 27, figs. 5a-c.
 Kaskaskia L. S.: Kaskaskia and Chester, Illinois; Crittenden County,
 Kentucky.
 1874. *Spiriferina spinosa* (?) Derby, Bull. Cornell Univ. (Sci.), vol. 1, No. 2, p. 23,
 pl. 6, figs. 8, 13, 14.
 Coal Measures: Itaituba, Brazil.
 1883. *Spiriferina spinosa*. Hall, Rep. N. Y. State Geol. for 1882, pl. (35) 60, figs.
 26-29.
 Chester L. S.: Chester, Illinois.
 1891. *Spiriferina spinosa*. Herrick, Bull. Geol. Soc. Am., vol. 2, p. 46, pl. 1, fig. 19.
 Upper Waverly Group: Scioto County, Ohio.
 1894. *Spiriferina spinosa*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 31,
 figs. 4-7.
 Chester L. S.: Chester, Illinois.
 1894. *Spiriferina spinosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 85.
 Kaskaskia L. S.: Ste. Mary, Missouri.
 1895. *Spiriferina spinosa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 35, figs.
 26-29.
 Chester L. S.: Chester, Illinois.

Spiriferina spinosa* var *campestris*. See *Spiriferina octoplicata*.**Spiriferina subelliptica* McChesney.**

1860. *Spirifer subelliptica*. McChesney, Desc. New Pal. Foss., p. 43.
 Kaskaskia L. S.: Button-mould Knob, Kentucky.
 1894. *Spiriferina subelliptica*. Hall and Clarke, Int. to Study of Brach., pt. 2,
 pl. 2, fig. 2.
 Keokuk Group: New Providence, Indiana.
 1895. *Spiriferina subelliptica*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 35, figs.
 21, 22.
 Keokuk Group: New Providence, Indiana.

Spiriferina subtexta White.

1862. *Spiriferina? subtexta*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 25.
Lower Burlington L. S.: Burlington, Iowa.

Spiriferina transversa McChesney.

1860. *Spirifer transversa*. McChesney, Desc. New Pal. Foss., p. 42.
Kaskaskia L. S.: Buzzard's Roost, Alabama.
1865. *Spirifer transversa*. McChesney, Ill. New Spec. Foss., pl. 6, figs. 3a-c.
1868. *Spirifer transversa*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 34,
pl. 6, figs. 3a-c.
Chester L. S.: Buzzard's Roost, Alabama.
1874. *Spiriferina transversa*. Derby, Bull. Cornell Univ. (Science), vol. 1, No. 2,
p. 21, pl. 2, figs. 4, 6, 13; pl. 3, figs. 12, 14, 17; pl. 5, fig. 4.
Coal Measures: Bomjardim and Itaituba, Brazil.
1883. *Spirifera transversa*. Hall, Rep. N. Y. State Geol. for 1882, pl. (35) 60, figs.
19-25.
Chester L. S.: Buzzard's Roost, Alabama.
Carboniferous: Brazil, South America.
1894. *Spiriferina transversa*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 31,
figs. 1-3.
Chester L. S.: Buzzard's Roost, Alabama.
Carboniferous L. S.: Itaituba, Brazil.
1895. *Spiriferina transversa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 35, figs.
19, 20, 23-25.
Chester L. S.: Buzzard's Roost, Alabama.
Carboniferous L. S.: Itaituba, Brazil.

Spiriferina (species undetermined.)

1864. *Spiriferina* (sp. undt.) Meek, Pal. Cal., vol. 1, p. 14.
Carboniferous: Bass's Ranch, Shasta County, California.
1877. *Spiriferina* (undt. sp.) Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 84, pl. 8, figs.
5-5b.
Carboniferous L. S.: Railroad Canyon, Diamond Mountains, Nevada.
1895. *Spiriferina* sp? Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 39, figs. 23, 24.
Chester L. S.: Caldwell County, Kentucky.
1897. *Spiriferina* sp? Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 258.
Batesville S. S.: Batesville, Arkansas.

(SPIRIGERA D'Orbigny, 1847.)

Spirigera americana. See *Cleiothyris roissyi*.

Spirigera biloba. See *Athyris biloba*.

Spirigera caput-serpentis. See *Seminula argentea*.

Spirigera charitonensis. See *Seminula argentea*.

Spirigera clintonensis. See *Cleiothyris clintonensis*.

Spirigera corpulenta. See *Athyris corpulenta*.

Spirigera euzona. See *Athyris euzona*.

Spirigera formosa. See *Athyris formosa*.

Spirigera hannibalensis. See *Athyris hannibalensis*.

Spirigera hawni. See *Seminula argentea*.

Spirigera hirsuta. See *Cleiothyris hirsuta*.

Spirigera maconensis. See *Athyris maconensis*.

Spirigera missouriensis. See *Cleiothyris missouriensis*.

Spirigera monticola. See *Athyris monticola*.

Spirigera obmaxima. See *Cleiothyris obmaxima*.

Spirigera ohioensis. See *Athyris ohioensis*.

Spirigera pectinifera. See *Cleiothyris roissyi*.

Spirigera planosulcata. See *Cleiothyris roissyi*.

Spirigera plattensis. See *Athyris plattensis*.

Spirigera proutii. See *Athyris prouti*.

Spirigera reflexa. See *Cleiothyris reflexa*.

Spirigera singletonii. See *Seminula argentea*.

Spirigera subtilita. See *Seminula argentea*.

SPIRODOMUS Beecher, 1886.

Spirodomus insignis Beecher.

1886. *Spirodomus insignis*. Beecher, 39th Rep. N. Y. State Mus. Nat. Hist., p. 162, pl. 12, fig. 1-5.

Waverly Group: Warren County, Pennsylvania.

SPIRORBIS Lamark, 1801.

Spirorbis angulatus Dawson.

1868. *Spirorbis angulatus*. Dawson, Acad. Geol., p. 312.

Carboniferous L. S.: Windsor, Nova Scotia.

(This name was preoccupied by Hall in 1862.)

Spirorbis annulatus Hall.

1856. *Spirorbis annulatus*. Hall, Trans. Albany Inst., vol. 4, p. 34.

St. Louis L. S.: Spergen Hill and Bloomington, Indiana; Alton, Illinois.

1882. *Spirorbis annulatus*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 92, pl. 9, fig. 30.

St. Louis Group: Spergen Hill and Bloomington, Indiana; Alton, Illinois.

1883. *Spirorbis annulatus*. Hall, 12th Rep. Geol. Surv. Ind., p. 374, pl. 32, fig. 30.

St. Louis Group: Alton, Illinois; Spergen Hill, Bloomington, and Lanesville, Indiana.

Spirorbis annulatus var. *nodulosus*. See *Spirorbis nodulosus*.

Spirorbis anthracosia Whitfield.

1881. *Spirorbis anthracosia*. Whitfield, Am. Jour. Sci. (3), vol. 21, p. 123.

Coal Measures: Near Marietta, Ohio.

1891. *Spirorbis anthracosia*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 608, pl. 16, figs. 18, 19.

Coal Measures: Marietta, Ohio.

1895. *Spirorbis anthracosia*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 492, pl. 12, figs. 18, 19.

Coal Measures: Near Marietta, Ohio.

Spirorbis arietinus Dawson.

1871. *Spirorbis arietina*. Dawson, Geol. Surv. Canada. Rep. Prog. 1868-1889, p. 15, fig.

Carboniferous: Near New Glasgow, Nova Scotia.

Spirorbis blairi Miller and Gurley.

1895. *Spirorbis blairi*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 89, pl. 5, figs. 14, 15.

Chouteau L. S.: Sedalia, Missouri.

Spirorbis carbonarius Dawson.

- * 1845. *Spirorbis carbonarius*. Dawson, Quart. Jour. Geol. Soc. Lond., vol. 1, p. 326.
Coal Measures: Nova Scotia.
1889. *Spirorbis carbonarius*. Packard, Proc. Bost. Soc. Nat. Hist., vol. 24, p. 214.
Carboniferous: Pawtucket, Rhode Island.

Spirorbis kinderhookensis Gurley.

1883. *Spirorbis Kinderhookensis*. Gurley, New Carb. Foss. Bull., No. 1, p. 9.
Kinderhook Group: Pike County, Missouri.

Spirorbis nodulosus Hall.

1856. *Spirorbis annulatus* var. *nodulosus*. Hall, Trans. Albany Inst., vol. 4, p. 34.
St. Louis L. S.: Spergen Hill, Indiana.
1882. *Spirorbis nodulosus*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 93, pl. 9,
fig. 31.
St. Louis Group: Spergen Hill, Indiana.
1883. *Spirorbis nodulosus*. Hall, 12th Rep. Geol. Surv. Ind., p. 375, pl. 32, fig. 31.
St. Louis Group: Spergen Hill and Laneville, Indiana.

Spirorbis orbiculostoma Swallow.

1858. *Spirorbis orbiculostoma*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 181.
Permian: Kansas.

Spirorbis (undetermined species).

1891. *Spirorbis*. White, Bull. U. S. Geol. Surv., No. 77, p. 30, pl. 3, fig. 17.
Permian: Military Crossing, Baylor County, Texas.

SPRAGIOPORA Ulrich, 1890.**Spragiopora parasitica Ulrich.**

1890. *Spragiopora parasitica*. Ulrich, Geol. Surv. Ill., vol. 8, p. 638, pl. 65,
figs. 6, 6a.
Chester Group: Chester, Illinois.

STEAROCERAS Hyatt, 1893.**Stearoceras gibbosum Hyatt.**

1891. *Endolobus gibbosus*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 353,
figs. 55, 56.
Carboniferous: Colorado River, San Saba County, near Bend, Texas.
1893. *Stearoceras gibbosum*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 424,
figs. 7a, 8.
Carboniferous: Near Bend, San Saba County, Texas.

STEGANOCRINUS Meek and Worthen, 1866.**Steganoocrinus albersi Miller and Gurley.**

1897. *Steganoocrinus albersi*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat.
Hist., p. 33, pl. 2, figs. 13-16
Burlington Group: Burlington, Iowa.

Steganoocrinus araneolus Meek and Worthen.

1860. *Actinoocrinus araneolus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 387.
Burlington L. S.: Burlington, Iowa.
1866. *Steganoocrinus araneolus*. Meek and Worthen, Geol. Surv. Ill., vol. 2,
p. 198, pl. 15, figs. 1a, b.
Burlington L. S.: Burlington, Iowa.
1894. *Steganoocrinus araneolus*. Keyes, Mo. Geol. Surv., vol. 4, p. 194.
Lower Burlington L. S.: Kinderhook, Illinois; Burlington, Iowa.

***Spirifer tennicostus* Hall.**

1858. *Spirifer tennicostus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 662, pl. 23, figs. 8a-c.
Keokuk and Warsaw L. S.: Keokuk, Iowa; Warsaw and Dallas, Illinois.

***Spirifer tenuimarginatus* Hall.**

1858. *Spirifer tenuimarginatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 641, pl. 20, figs. 1a-c.
Keokuk L. S.: Warsaw, Illinois.
1883. *Spirifera tenuimarginata*. Hall, Rep. N. Y. Stat. Geol. for 1882, pl. (32) 57, figs. 4-6.
Keokuk Group: Keokuk, Iowa.
1895. *Spirifer tenuimarginatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 32, figs. 4, 6.
Keokuk Group: Keokuk, Iowa.

Spirifer tenuispinatus*. See *Reticularia tenuispinata*.**Spirifer texanus* Meek.**

1871. *Spirifer (Trigonotreta?) texanus*. Meek, Proc. Acad. Nat. Sci. Phil., p. 179.
Coal Measures: Young County, Texas.
1876. *Spirifer (Trigonotreta?) Texanus*. Newberry, U. S. Expl. Exped. from Santa Fe to Grand and Green rivers, p. 139, pl. 3, figs. 5-5b.
Coal Measures: Young County and Jack County, Texas; West Fork of Trinity River, Texas.
1894. *Spirifer Texana*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 26, fig. 9.
Coal Measures: Missouri.
1895. *Spirifer Texanus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 37, figs. 16, 17.
Carboniferous L. S.: Graham County, Texas.

Spirifer textus*. See *Syringothyris textus*.**Spirifer translatus*. See *Reticularia translata*.*****Spirifer transversus*. See *Spiriferina transversa*.*****Spirifer trigonalis* Martin.**

1884. *Spirifer trigonalis*. Walcott, Pal. Eureka Dist., p. 215, pl. 18, fig. 11.
Lower Carboniferous: Eureka District, Nevada.

Spirifer triplicatus*. See *Spirifer cameratus*.**Spirifer vernonensis* Swallow.**

1860. *Spirifera Vernonensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 644.
Chemung rocks: St. Louis County, Missouri.
1865. *Spirifer Vernonensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 119.
Sulphur Springs, Missouri.

***Spirifer vernonensis* var. *ozarkensis* Swallow.**

1860. *Spirifer Vernonensis* var. *Ozarkensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 644.
Chemung Rocks: Taney County, Missouri.

***Spirifer waverlyensis* Winchell.**

1870. *Spirifera Waverlyensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 251.
Waverly Group.

***Spirifer winchelli* Herrick.**

1888. *Spirifer winchelli*. Herrick, Bull. Den. Univ., vol. 3, p. 46, pl. 1, fig. 1, pl. 2, fig. 16; pl. 5, figs. 2, 3.
Waverly Group: Licking County, Ohio.
1895. *Spirifer winchelli*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 21, figs. 2, 3.
Lower part of Burlington, above Conglomerate II: Ohio.

Spirifer (species undetermined).

1848. *Spirifer*. Christy, Letters on Geol., pl. 5, figs. 1-4.
Sandstone above black slate: Elk River, Tennessee.
1854. *Spirifer* (undet.). Shumard, Marcy's Expl. Red River of Louis., p. 177, pl. 1, fig. 3.
Carboniferous: Washington County, Arkansas.
1855. *Spirifer* (undet.). Schiel, Pac. R. R. Rep., vol. 2, p. 108, pl. 1, fig. 5.
Carboniferous L. S.: Near Westport.
1858. *Spirifer* — (n. s.). Hall, Geol. Iowa, vol. 1, pt. 2, p. 647.
Keokuk L. S.
1859. *Spirifer* —. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 28.
Upper Coal Measures: Above Fort Riley, Kansas.
1877. *Spirifer* — sp. ? Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 271, pl. 5, fig. 16.
Weber Quartzite: Bear River, Uinta Range, Utah.
1877. *Spirifera* (?) cf. *S. disjuncta*. Whiteaves, Geol. Surv. Canada, Rep. of Prog. 1875-76, p. 100.
Devonian or Carboniferous: Fossil Point, Peace River, Canada.
1877. *Spirifera* — (?). Whiteaves, Geol. Surv. Canada, Rep. of Prog. 1875-76, p. 101.
Devonian or Carboniferous: Fossil Point, Peace River, Canada.
1878. *Spirifera* sp. allied to *S. lamellosa* McCoy. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 629.
Carboniferous: Feilden Isthmus, latitude 82° 43'.
1887. *Spirifera* sp. ? Herrick, Bull. Den. Univ., vol. 2, p. 46, pl. 2, fig. 6.
Coal Measures: Flint Ridge, Ohio.
1888. *Spirifer* sp. ? Herrick, Bull. Den. Univ., vol. 3, pl. 1, fig. 2.
Waverly Group: Licking County, Ohio.
1888. *Spirifer* sp. (cf. *S. varicosta* Con.). Herrick, Bull. Den. Univ., vol. 3, p. 46, pl. 1, fig. 5.
Waverly Group: Licking County, Ohio.
1888. *Spirifer* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 7, fig. 24.
Waverly Group: Licking County, Ohio.
1888. *Spirifer* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 9, fig. 19.
Waverly Group: Licking County, Ohio.
1888. *Spirifer* (resembling *altus*). Herrick, Bull. Den. Univ., vol. 4, pl. 2, figs. 3, 10.
Waverly Group: Moot's Run, Licking County, Ohio.
1888. *Spirifer* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 2, fig. 6.
Waverly Group: Newark, Ohio.
1888. *Spirifer* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 19.
Waverly Group: Cuyahoga Falls, Ohio.
1896. *Spirifer*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 46, fig. 22.
Waverly Group: Richfield, Ohio.
1896. *Spirifer* sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 14, fig. 6.
Keokuk division of Waverly Group: Newark, Ohio.
1896. *Spirifer* (like *S. altus*). Herrick, Geol. Surv. Ohio, vol. 7, pl. 15, figs. 3-10.
Waverly Group: Moot's Run, Licking County, Ohio.

SPIRIFERINA D'Orbigny, 1847.***Spiriferina aciculifera* Rowley.**

1893. *Spirifera aciculifera*. Rowley, Am. Geol., vol. 12, p. 307, pl. 14, figs. 13, 14.
(*Spiriferina* in Expl. of Plate.)
Louisiana (Lithographic) L. S.: Louisiana, Missouri.

***Spiriferina billingsi* Shumard.**

1858. *Spiriferina Billingsi*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 294.
White Permian L. S.: Guadalupe Mountains, and at mouth of Delaware
Creek, New Mexico.
1859. *Spiriferina Billingsi*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 391.
White and Dark Permian L. S.: Guadalupe Mountains.

***Spiriferina binacuta* Winchell.**

1865. *Spiriferina binacuta*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 120.
Base of Burlington, L. S.: Burlington, Iowa.

***Spiriferina clarksvillensis* Winchell.**

1865. *Spiriferina Clarksvillensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 119.
Lithographie L. S.: Clarksville, Missouri.
1894. *Spiriferina clarksvillensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 85.
Louisiana L. S.: Clarksville, Mo.

***Spiriferina cristata*.**

1863. *Spiriferina cristata*. Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 170,
pl. 9, fig. 6.
Lower Carboniferous L. S.: Windsor, Brookfield, Shubenacadie, Debert
River, and East River, Nova Scotia.
1868. *Spiriferina cristata*. Dawson, Acad. Geol., p. 291, fig. 90.
Carboniferous L. S.: Windsor, Brookfield, Shubenacadie, Debert River,
and East River, Nova Scotia.
1884. *Spiriferina cristata*. Walcott, Pal. Eureka Dist., p. 218, pl. 18, figs. 12, 13.
Lower Carboniferous: Eureka District, Nevada.

See also *Spiriferina kentuckiensis*.

***Spiriferina depressa* Herrick.**

1888. *Spiriferina depressa*. Herrick, Bull. Den. Univ., vol. 3, p. 47, pl. 10, fig. 3.
Waverly Group: Licking County, Ohio.

***Spiriferina kentuckiensis* Shumard.**

1852. *Spirifer octoplicata?* Hall, Stansb. Exped. to Git. Salt Lake, p. 409, pl. 4,
figs. 4a, b.
Carboniferous: Missouri River, near Weston.
1855. *Spirifer Kentuckensis*. Shumard, Geol. Rep. Mo., p. 203.
Coal Measures: On the Missouri River near Weston, and Grayson County,
Kentucky.
1856. *Spirifer kentuckensis*. Hall, Pac. R. R. Rep., vol. 3, p. 102, pl. 2, figs. 10, 11.
Carboniferous: Pecos Village, New Mexico.
1859. *Spirifer Kentuckensis*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 27.
Upper Coal Measures: Leavenworth, Kansas.
1866. *Spirifer laminaeus*. Geinitz, Carb. und Dyas in Nebr., p. 45, tab. 3, figs. 19a-d.
Plattsmouth and Nebraska City, Nebraska.
1872. *Spiriferina Kentuckensis*. Meek, U. S. Geol. Surv. Nebr., p. 185, pl. 6, figs.
3a-d; pl. 8, figs. 11a, b.
Upper Coal Measures: Nebraska City, Nebraska.
Coal Measures: Kentucky, Illinois, Missouri, Iowa, Nebraska, Kansas,
Texas, New Mexico.
1876. *Spiriferina Kentuckensis*. White, Powell's Rep. Geol. Uinta Mts., p. 90.
Lower and Upper Aubrey Group: Confluence of Grand and Green Rivers,
Utah.
1877. *Spiriferina Kentuckensis*. White, U. S. Geog. Surv. W. 100 Merid., vol. 1,
p. 138, pl. 10, figs. 4a-c.
Carboniferous: Santa Fé, New Mexico; Meadow Creek, south of Fillmore,
Utah; Camp Apache, Arizona.

***Spiriferina kentuckiensis* Shumard—Continued.**

1883. *Spirifera (Spiriferina) Kentuckiensis*. Hall, Rep. N. Y. State Geol. for 1882, pl. (36) 61, figs. 14-16.

Coal Measures.

1884. *Spiriferina Kentuckiensis*. White, 13th Rep. Geol. Surv. Ind., p. 135, pl. 35, figs. 13, 14.

Middle and Upper Coal Measures: Vermilion, Vigo, Knox, Gibson, Posey, Vanderburg, Dubois, and Spencer counties, Indiana.

1888. *Spiriferina kentuckiensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 231.

Lower Coal Measures: Des Moines, Iowa.

1894. *Spiriferina kentuckiensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 86.

Upper Coal Measures: Kansas City and Lexington, Missouri.

1895. *Spiriferina Kentuckiensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 29, fig. 17; pl. 36, figs. 14-16.

Coal Measures: Vinton County, Ohio; Illinois.

1897. *Spiriferina cristata*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 32.

Lower Coal Measures: Conway County, Arkansas.

Upper Coal Measures: Sebastian County, Arkansas, and Poteau Mountain, Indian Territory.

***Spiriferina kentuckiensis* var. *propatula* Swallow.**

1886. *Spiriferina kentuckiensis* var. *propatulus*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 409.

Upper Coal Measures: Missouri.

***Spiriferina norwoodana* Hall.**

1856. *Spirifer norwoodana*. Hall, Trans. Albany Inst., vol. 4, p. 7.

St. Louis L. S.: Spergen Hill, Indiana; Alton, Illinois.

1882. *Spiriferina Norwoodana*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 48, pl. 6, figs. 16, 17.

St. Louis Group: Spergen Hill, Indiana; Alton, Illinois.

1883. *Spiriferina norwoodana*. Hall, 12th Rep. Geol. Surv. Ind., p. 327, pl. 29, figs. 16, 17.

St. Louis Group: Alton, Illinois; Spergen Hill, Indiana.

***Spiriferina octoplicata* Sowerby.**

1874. *Spiriferina spinosa* var. *campestris*. White, Prelim. Rep. Surv. Inv. Foss., p. 21.

Carboniferous (Coal Measures): Near Santa Fé, New Mexico; Camp Cottonwood, Lincoln County, Nevada.

1877. *Spiriferina octoplicata*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 139, pl. 10, figs. 8a-c.

Carboniferous: Near Santa Fé, New Mexico: Camp Cottonwood, Lincoln County, Nevada.

1878. *Spiriferina cristata?* var. *octoplicata*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 629.

Carboniferous: Cape Joseph Henry, latitude 82° 43'.

1888. *Spiriferina octoplicata?* Herrick, Bull. Den. Univ., vol. 3, pl. 7, fig. 16.

Waverly Group: Licking County, Ohio.

***Spiriferina pulchra* Meek.**

1860. *Spirifera pulchra*. Meek, Proc. Acad. Nat. Sci. Phil., p. 310.

Upper Carboniferous: East and west sides of Long Valley, and Pass east of Ruby Valley, latitude 40°, longitude 115° 20'.

1884. *Spiriferina pulchra*. Meek, Pal. Up. Mo., p. 19.

Nevada Territory.

1876. *Spirifer (Spiriferina) pulchra*. Meek, Simpson's Exp. Gt. Basin, Utah, p. 352, pl. 2, figs. 1a-h.

Spiriferina pulchra Meek—Continued.

1876. Yellow L. S. (Upper Carboniferous): Long Valley and Ruby Valley.
 1877. *Spiriferina pulchra*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 85, pl. 8, figs. 1-1e, pl. 12, figs. 12-12d.
 Carboniferous L. S.: Nevada, latitude 40° north, longitude 115° 20' west;
 White Pine County, Nevada, 25 miles northeast of Hamilton, Ruby
 Group; mouth of Weber Canyon.

Spiriferina solidirostris Winchell.

1865. *Spiriferina solidirostris*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 120.
 Base of Burlington L. S.: Burlington, Iowa; Hamburg, Illinois.
 1870. *Spiriferina solidirostris*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 252.
 Waverly Group: Newark, Sciotoville, and Rockville, Ohio.
 1888. *Spiriferina solidirostris*. Herrick, Bull. Den. Univ., vol. 3, p. 47, pl. 1, fig. 8;
 pl. 2, figs. 9-11; pl. 5, fig. 13.
 Waverly Group: Licking County, Ohio.
 1895. *Spiriferina solidirostris*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 21, fig. 13.
 Burlington: Ohio.

Spiriferina spinosa Norwood and Pratten.

1855. *Spirifer spinosus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2),
 vol. 3, p. 71, pl. 9, figs. 1a-d.
 Top of Mountain L. S.: Chester, Illinois; Pope County, Illinois; and in
 Missouri opposite Hat Island.
 1856. *Spiriferina spinosa*. Hall, Trans. Albany Inst., vol. 4, p. 8.
 St. Louis L. S.: Bloomington, Indiana; Alton, Illinois.
 1858. *Spirifer spinosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 706, pl. 27, figs. 5a-c.
 Kaskaskia L. S.: Kaskaskia and Chester, Illinois; Crittenden County,
 Kentucky.
 1874. *Spiriferina spinosa* (?) Derby, Bull. Cornell Univ. (Sci.), vol. 1, No. 2, p. 23,
 pl. 6, figs. 8, 13, 14.
 Coal Measures: Itaituba, Brazil.
 1883. *Spiriferina spinosa*. Hall, Rep. N. Y. State Geol. for 1882, pl. (35) 60, figs.
 26-29.
 Chester L. S.: Chester, Illinois.
 1891. *Spiriferina spinosa*. Herrick, Bull. Geol. Soc. Am., vol. 2, p. 46, pl. 1, fig. 19.
 Upper Waverly Group: Scioto County, Ohio.
 1894. *Spiriferina spinosa*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 31,
 figs. 4-7.
 Chester L. S.: Chester, Illinois.
 1894. *Spiriferina spinosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 85.
 Kaskaskia L. S.: Ste. Mary, Missouri.
 1895. *Spiriferina spinosa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 35, figs.
 26-29.
 Chester L. S.: Chester, Illinois.

Spiriferina spinosa var *campestris*. See *Spiriferina octoplicata*.

Spiriferina subelliptica McChesney.

1860. *Spirifer subelliptica*. McChesney, Desc. New Pal. Foss., p. 43.
 Kaskaskia L. S.: Button-mould Knob, Kentucky.
 1894. *Spiriferina subelliptica*. Hall and Clarke, Int. to Study of Brach., pt. 2,
 pl. 2, fig. 2.
 Keokuk Group: New Providence, Indiana.
 1895. *Spiriferina subelliptica*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 35, figs.
 21, 22.
 Keokuk Group: New Providence, Indiana.

Spiriferina subtexta White.

1862. *Spiriferina?* *subtexta*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 25.
Lower Burlington L. S.: Burlington, Iowa.

Spiriferina transversa McChesney.

1860. *Spirifer transversa*. McChesney, Desc. New Pal. Foss., p. 42.
Kaskaskia L. S.: Buzzard's Roost, Alabama.
1865. *Spirifer transversa*. McChesney, Ill. New Spec. Foss., pl. 6, figs. 3a-c.
1868. *Spirifer transversa*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 34,
pl. 6, figs. 3a-c.
Chester L. S.: Buzzard's Roost, Alabama.
1874. *Spiriferina transversa*. Derby, Bull. Cornell Univ. (Science), vol. 1, No. 2,
p. 21, pl. 2, figs. 4, 6, 13; pl. 3, figs. 12, 14, 17; pl. 5, fig. 4.
Coal Measures: Bomjardim and Itaituba, Brazil.
1883. *Spirifera transversa*. Hall, Rep. N. Y. State Geol. for 1882, pl. (35) 60, figs.
19-25.
Chester L. S.: Buzzard's Roost, Alabama.
Carboniferous: Brazil, South America.
1894. *Spiriferina transversa*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 31,
figs. 1-3.
Chester L. S.: Buzzard's Roost, Alabama.
Carboniferous L. S.: Itaituba, Brazil.
1895. *Spiriferina transversa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 35, figs.
19, 20, 23-25.
Chester L. S.: Buzzard's Roost, Alabama.
Carboniferous L. S.: Itaituba, Brazil.

Spiriferina (species undetermined.)

1864. *Spiriferina* (sp. undt.) Meek, Pal. Cal., vol. 1, p. 14.
Carboniferous: Bass's Ranch, Shasta County, California.
1877. *Spiriferina* (undt. sp.) Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 84, pl. 8, figs.
5-5b.
Carboniferous L. S.: Railroad Canyon, Diamond Mountains, Nevada.
1895. *Spiriferina* sp? Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 39, figs. 23, 24.
Chester L. S.: Caldwell County, Kentucky.
1897. *Spiriferina* sp? Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 258.
Batesville S. S.: Batesville, Arkansas.

(SPIRIGERA D'Orbigny, 1847.)

- Spirigera americana*. See *Oleiothyris roissyi*.
- Spirigera biloba*. See *Athyris biloba*.
- Spirigera caput-serpentis*. See *Seminula argentea*.
- Spirigera charitonensis*. See *Seminula argentea*.
- Spirigera clintonensis*. See *Oleiothyris clintonensis*.
- Spirigera corpulenta*. See *Athyris corpulenta*.
- Spirigera euzona*. See *Athyris euzona*.
- Spirigera formosa*. See *Athyris formosa*.
- Spirigera hannibalensis*. See *Athyris hannibalensis*.
- Spirigera hawni*. See *Seminula argentea*.
- Spirigera hirsuta*. See *Oleiothyris hirsuta*.
- Spirigera maconensis*. See *Athyris maconensis*.

Spirigera missouriensis. See *Cleiothyris missouriensis*.

Spirigera monticola. See *Athyris monticola*.

Spirigera obmaxima. See *Cleiothyris obmaxima*.

Spirigera ohioensis. See *Athyris ohioensis*.

Spirigera pectinifera. See *Cleiothyris roissyi*.

Spirigera planosulcata. See *Cleiothyris roissyi*.

Spirigera plattensis. See *Athyris plattensis*.

Spirigera proutii. See *Athyris prouti*.

Spirigera reflexa. See *Cleiothyris reflexa*.

Spirigera singletonii. See *Seminula argentea*.

Spirigera subtilita. See *Seminula argentea*.

SPIRODOMUS Beecher, 1886.

Spirodomus insignis Beecher.

1886. *Spirodomus insignis*. Beecher, 39th Rep. N. Y. State Mus. Nat. Hist., p. 162, pl. 12, fig. 1-5.

Waverly Group: Warren County, Pennsylvania.

SPIRORBIS Lamark, 1801.

Spirorbis angulatus Dawson.

1868. *Spirorbis angulatus*. Dawson, Acad. Geol., p. 312.

Carboniferous L. S.: Windsor, Nova Scotia.

(This name was preoccupied by Hall in 1862.)

Spirorbis annulatus Hall.

1856. *Spirorbis annulatus*. Hall, Trans. Albany Inst., vol. 1, p. 34.

St. Louis L. S.: Spergen Hill and Bloomington, Indiana; Alton, Illinois.

1882. *Spirorbis annulatus*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 92, pl. 9, fig. 30.

St. Louis Group: Spergen Hill and Bloomington, Indiana; Alton, Illinois.

1883. *Spirorbis annulatus*. Hall, 12th Rep. Geol. Surv. Ind., p. 374, pl. 32, fig. 30.

St. Louis Group: Alton, Illinois; Spergen Hill, Bloomington, and Lanesville, Indiana.

Spirorbis annulatus var. *nodulosus*. See *Spirorbis nodulosus*.

Spirorbis anthracosia Whitfield.

1881. *Spirorbis anthracosia*. Whitfield, Am. Jour. Sci. (3), vol. 21, p. 128.

Coal Measures: Near Marietta, Ohio.

1891. *Spirorbis anthracosia*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 608, pl. 16, figs. 18, 19.

Coal Measures: Marietta, Ohio.

1895. *Spirorbis anthracosia*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 492, pl. 12, figs. 18, 19.

Coal Measures: Near Marietta, Ohio.

Spirorbis arietinus Dawson.

1871. *Spirorbis arietina*. Dawson, Geol. Surv. Canada. Rep. Prog. 1866-1869, p. 15, fig.

Carboniferous: Near New Glasgow, Nova Scotia.

Spirorbis blairi Miller and Gurley.

1895. *Spirorbis blairi*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 89; pl. 5, figs. 14, 15.

Chouteau L. S.: Sedalia, Missouri.

Spirorbis carbonarius Dawson.

- * 1845. *Spirorbis carbonarius*. Dawson, Quart. Jour. Geol. Soc. Lond., vol. 1, p. 326.
Coal Measures: Nova Scotia.
1889. *Spirorbis carbonarius*. Packard, Proc. Bost. Soc. Nat. Hist., vol. 24, p. 214.
Carboniferous: Pawtucket, Rhode Island.

Spirorbis kinderhookensis Gurley.

1883. *Spirorbis Kinderhookensis*. Gurley, New Carb. Foss. Bull., No. 1, p. 9.
Kinderhook Group: Pike County, Missouri.

Spirorbis nodulosus Hall.

1856. *Spirorbis annulatus* var. *nodulosus*. Hall, Trans. Albany Inst., vol. 4, p. 34.
St. Louis L. S.: Spergen Hill, Indiana.
1882. *Spirorbis nodulosus*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 93, pl. 9,
fig. 31.
St. Louis Group: Spergen Hill, Indiana.
1883. *Spirorbis nodulosus*. Hall, 12th Rep. Geol. Surv. Ind., p. 375, pl. 32, fig. 31.
St. Louis Group: Spergen Hill and Lanesville, Indiana.

Spirorbis orbiculostoma Swallow.

1858. *Spirorbis orbiculostoma*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 181.
Permian: Kansas.

Spirorbis (undetermined species).

1891. *Spirorbis*. White, Bull. U. S. Geol. Surv., No. 77, p. 30, pl. 3, fig. 17.
Permian: Military Crossing, Baylor County, Texas.

SPRAGIOPORA Ulrich, 1890.**Spragiopora parasitica Ulrich.**

1890. *Spragiopora parasitica*. Ulrich, Geol. Surv. Ill., vol. 8, p. 638, pl. 65,
figs. 6, 6a.
Chester Group: Chester, Illinois.

STEAROCERAS Hyatt, 1893.**Stearoceras gibbosum Hyatt.**

1891. *Endolobus gibbosus*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 353,
figs. 55, 56.
Carboniferous: Colorado River, San Saba County, near Bend, Texas.
1893. *Stearoceras gibbosum*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 424,
figs. 7a, 8.
Carboniferous: Near Bend, San Saba County, Texas.

STEGANOCRINUS Meek and Worthen, 1866.**Steganocrinus albersi Miller and Gurley.**

1897. *Steganocrinus albersi*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat.
Hist., p. 33, pl. 2, figs. 13-16.
Burlington Group: Burlington, Iowa.

Steganocrinus araneolus Meek and Worthen.

1860. *Actinocrinus araneolus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 387.
Burlington L. S.: Burlington, Iowa.
1866. *Steganocrinus araneolus*. Meek and Worthen, Geol. Surv. Ill., vol. 2,
p. 198, pl. 15, figs. 1a, b.
Burlington L. S.: Burlington, Iowa.
1894. *Steganocrinus araneolus*. Keyes, Mo. Geol. Surv., vol. 4, p. 194.
Lower Burlington L. S.: Kinderhook, Illinois; Burlington, Iowa.

Steganoecrinus araneolus Meek and Worthen—Continued.

1897. *Steganoecrinus araneolus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 581, pl. 61, figs. 2a, b.
Lower Burlington L. S.: Burlington, Iowa; Sedalia, Missouri; Lake Valley, New Mexico.

Steganoecrinus benedicti Miller.

1892. *Steganoecrinus benedicti*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 27, pl. 4, figs. 10-12.
Keokuk Group: Canton, Washington County, Indiana.
1894. *Steganoecrinus benedicti*. Miller, 18th Rep. Geol. Surv. Ind., p. 281, pl. 4, figs. 10-12.
Keokuk Group: Canton, Washington County, Indiana.

Steganoecrinus blairi Miller and Gurley.

1897. *Steganoecrinus blairi*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 35, pl. 2, figs. 21, 22.
Burlington Group: Near Sharon, Missouri.

Steganoecrinus concinnus Shumard.

1855. *Actinoecrinus concinnus*. Shumard, Geol. Rep. Mo., p. 189, pl. A, fig. 5.
Encrinital L. S.: North River, Marion County, Missouri.
1860. *Actinoecrinus validus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 384.
Burlington L. S.: Cedar Creek, Warren County, Illinois.
1866. *Actinoecrinus concinnus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 200, pl. 15, figs. 9a, b.
Burlington L. S.: Cedar Creek, Warren County, Illinois.
1894. *Steganoecrinus concinnus*. Keyes, Mo. Geol. Surv., vol. 4, p. 194.
Upper Burlington L. S.: Marion County, Missouri; Springfield, Missouri; Kinderhook, Illinois.
1895. *Shumardocrinus concinnus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 41, pl. 2, figs. 7-10.
Burlington Group: Sedalia, Missouri.
1897. *Steganoecrinus concinnus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 582, pl. 61, figs. 5a, b.
Upper Burlington L. S.: Burlington and Pleasant Grove, Iowa; Marion County, Missouri.

Steganoecrinus globosus Wachsmuth and Springer.

1897. *Steganoecrinus globosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 585, pl. 61, fig. 6.
Kinderhook Group: Burlington, Iowa.

Steganoecrinus griffithi Miller and Gurley.

1897. *Steganoecrinus griffithi*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 34, pl. 2, figs. 17-20.
Burlington Group: Burlington, Iowa.

Steganoecrinus pentagonus Hall.

1858. *Actinoecrinus pentagonus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 577, pl. 10, figs. 6a, b.
Burlington L. S.: Burlington, Iowa.
1866. *Steganoecrinus pentagonus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 196, fig. 9.
1868. *Steganoecrinus pentagonus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 474, pl. 16, fig. 8.
Burlington Group: Burlington, Iowa.
1894. *Steganoecrinus pentagonus*. Keyes, Mo. Geol. Surv., vol. 4, p. 195, pl. 24, fig. 9.
Lower Burlington L. S.: Louisiana, Missouri.

Steganocrinus pentagonus Hall—Continued.

1897. *Steganocrinus pentagonus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 579, pl. 61, figs. 3a-e, 4a, b.
Lower Burlington L. S.: Burlington, Iowa; Sedalia, Missouri; Lake Valley, New Mexico.

Steganocrinus sculptus Hall.

1858. *Actinocrinus sculptus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 582, pl. 10, figs. 11a, b.
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus sculptus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 3, fig. 3.
1873. *Actinocrinus sculptus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 343, pl. 4, fig. 2.
Burlington L. S.: Burlington, Iowa.
1874. *Actinocrinites sculptus*. Meek, Am. Jour. Sci. (3), vol. 7, p. 190.
1894. *Steganocrinus sculptus*. Keyes, Mo. Geol. Surv., vol. 4, p. 194.
Lower Burlington L. S.: White Ledge, Marion County, Missouri.
1897. *Steganocrinus sculptus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 583, pl. 61, figs. 1a-f.
Lower Burlington L. S.: Burlington, Iowa; Lake Valley, New Mexico.

Steganocrinus sharonensis Miller and Gurley.

1897. *Steganocrinus sharonensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 32, pl. 2, figs. 10-12.
Burlington Group: Near Sharon, Missouri.

Steganocrinus spergenensis Miller and Gurley.

1896. *Steganocrinus spergenensis*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 29, pl. 2, figs. 4-7.
St. Louis Group: Spergen Hill, Indiana.

STEMMATOCRINUS Trautschold, 1867.**Stemmatocrinus trautscholdi Wachsmuth and Springer.**

1886. *Stemmatocrinus trautscholdi*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 180, pl. 9, figs. 7, 8. (Rev. Palaeoec., pt. 3, p. 256.)
Keokuk L. S.: Near Nashville (White's Creek), Tennessee.

STENOPORA Lonsdale, 1844.**Stenopora americana Ulrich.**

1890. *Stenopora americana*. Ulrich, Geol. Surv. Ill., vol. 8, p. 437, pl. 74, figs. 1, 1a.
Keokuk Group: Jersey County and Warsaw, Illinois.
1894. *Stenopora americana*. Keyes, Mo. Geol. Surv., vol. 5, p. 14.
Keokuk L. S.: Warsaw, Illinois.

Stenopora americana var. varsoviensis Ulrich.

1890. *Stenopora americana* var. *varsoviensis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 437, pl. 74, figs. 3, 3a.
Keokuk Group: Warsaw, Illinois.

Stenopora angularis Ulrich.

1890. *Stenopora angularis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 439, pl. 74, figs. 6-6b.
Keokuk Group: Lagrange, Missouri.
1894. *Stenopora angularis*. Keyes, Mo. Geol. Surv., vol. 5, p. 15.
Keokuk L. S.: Lagrange, Missouri.

Stenopora carbonaria Worthen.

1875. *Chaetetes? carbonaria*. Worthen, Geol. Surv. Ill., vol. 6, p. 526, pl. 32, fig. 5.
Coal Measures: St. Clair County, Illinois.

Stenopora carbonaria Worthen—Continued.

1887. *Stenopora carbonaria*. Foerste, Bull. Den. Univ., vol. 2, p. 85, pl. 7, figs. 13a-c.

Coal Measures: Bald Hill and Flint Ridge, Ohio.

1890. *Stenopora carbonaria*. Ulrich, Geol. Surv. Ill., vol. 8, p. 445, pl. 73, figs. 8, 8a.

Coal Measures: Caseyville, Illinois; Lawrence, Kansas; Ohio.

Stenopora carbonaria var. *conferta* Ulrich.

1890. *Stenopora carbonaria* var. *conferta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 446, pl. 73, figs. 9, 9a.

Coal Measures: Caseyville, Illinois.

Stenopora carbonaria var. *maculosa* Ulrich.

1890. *Stenopora carbonaria* var. *maculosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 445, pl. 73, figs. 10, 10a.

Coal Measures: Caseyville, Illinois.

Stenopora cestrionensis Ulrich.

1890. *Stenopora cestrionensis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 442, pl. 74, figs. 7, 7a.

Chester Group: Chester, Illinois.

1894. *Stenopora cestrionensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 16.

Kaskaskia L. S.: Chester, Illinois.

Stenopora columnaris. See *Rhombopora lepidodendroides* and *Fistulipora nodulifera*.**Stenopora emaciata** Ulrich.

1890. *Stenopora emaciata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 438, pl. 74, figs. 2, 2a.

Keokuk Group: Warsaw, Illinois; Keokuk, Iowa.

1894. *Stenopora emaciata*. Keyes, Mo. Geol. Surv., vol. 5, p. 15.

Keokuk L. S.: Warsaw, Illinois.

Stenopora exilis Dawson.

1868. *Stenopora exilis*. Dawson, Acad. Geol., p. 287, fig. 85a.

Carboniferous L. S.: Shubenacadie, Windsor, and Stewiacke, Nova Scotia.

Stenopora intercalaris Ulrich.

1890. *Stenopora intercalaris*. Ulrich, Geol. Surv. Ill., vol. 8, p. 439, pl. 74, figs. 5, 5a.

Keokuk Group: Warsaw, Illinois.

1894. *Stenopora intercalaris*. Keyes, Mo. Geol. Surv., vol. 5, p. 15.

Keokuk L. S.: Warsaw, Illinois.

Stenopora intermittens Ulrich.

1890. *Stenopora intermittens*. Ulrich, Geol. Surv. Ill., vol. 8, p. 440, fig. 16.

Keokuk Group: Warsaw, Illinois.

1894. *Stenopora intermittens*. Keyes, Mo. Geol. Surv., vol. 5, p. 15.

Keokuk L. S.: Warsaw, Illinois.

Stenopora meekana Ulrich.

1890. *Stenopora meekana*. Ulrich, Geol. Surv. Ill., vol. 8, p. 443, pl. 73, figs. 7, 7a.

Chester Group: Chester, Illinois.

1894. *Stenopora meekana*. Keyes, Mo. Geol. Surv., vol. 5, p. 16.

Kaskaskia L. S.: Chester, Illinois.

Stenopora montifera Ulrich.

1890. *Stenopora montifera*. Ulrich, Geol. Surv. Ill., vol. 8, p. 438, pl. 74, figs. 4-4b.

Keokuk Group: Otter Creek, Jersey County, Illinois; Bentonport, Iowa.

1894. *Stenopora montifera*. Keyes, Mo. Geol. Surv., vol. 5, p. 14.

Keokuk L. S.: Clark County, Missouri; Bentonport, Iowa.

Stenopora ohioensis Foerste.

1887. *Stenopora Ohioensis*. Foerste, Bull. Den. Univ., vol. 2, p. 85, pl. 7, figs. 12a-c.

Coal Measures: Flint Ridge, Ohio.

Stenopora ramosa Ulrich.

1890. *Stenopora ramosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 442, pl. 73, figs. 6-6c.
Chester Group: Sloan's Valley, Pulaski County, Kentucky; ? Chester, Illinois.

Stenopora rudis Ulrich.

1890. *Stenopora rudis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 444, pl. 72, figs. 8-8b.
Chester Group: Sloan's Valley, Pulaski County, Kentucky.

Stenopora? signata Ulrich.

1890. *Stenopora? signata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 446, pl. 73, figs. 5-5b.
Coal Measures: Caseyville, Illinois.

Stenopora tuberculata Prout.

1859. *Flustra tuberculata*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 447, pl. 17, figs. 3-3f.
Second Archimedes L. S.: Barrett's Station, St. Louis County, Missouri.
1860. *Cyclopora polymorpha*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 578.
Chester L. S.: Pope County, Illinois.
1866. *Cyclopora polymorpha*. Prout, Geol. Surv. Ill., vol. 2, p. 421, pl. 21, figs. 5-5b.
Chester Group: Pope County, Illinois.
1890. *Stenopora tuberculata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 441, fig. 17.
Chester Group: Chester, Illinois.
St. Louis L. S. and Warsaw Beds.
1894. *Stenopora tuberculata*. Keyes, Mo. Geol. Surv., vol. 5, p. 15.
St. Louis L. S.: Barrett Station, Missouri.
Kaskaskia L. S.: Chester, Illinois.

Stenopora (species undetermined).

1888. *Stenopora* (sp. undet.). Ulrich, Bull. Den. Univ., vol. 4, p. 92.
Cuyahoga Shale: Near Richfield, Ohio.

STICTOPORA Hall, 1847.**Stictopora striata** Hall.

1887. *Stictopora striata*. Hall, Pal. N. Y., vol. 6, p. 246, pl. 63, fig. 22.
Hamilton Group: Ontario County, New York.
1888. *Stictopora striata*. Herrick, Bull. Den. Univ., vol. 3, p. 95, pl. 12, fig. 40.
Waverly Group: Licking County, Ohio.

STICTOPORELLA Ulrich, 1882.**Stictoporella basalis** Ulrich.

1890. *Stictoporella basalis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 532, pl. 75, figs. 5-5b.
Warsaw beds: Warsaw, Illinois.
1894. *Stictoporella basalis*. Keyes, Mo. Geol. Surv., vol. 5, p. 22.
Keokuk L. S.: Warsaw, Illinois.

Stictoporella? undulata Ulrich.

1890. *Stictoporella? undulata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 533, pl. 69, figs. 6-6b.
Chester Group: Litchfield, Kentucky.

STRAPAROLLUS Montfort, 1810.**Straparollus ammon** White and Whitfield.

1862. *Euomphalus ammon*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 301.
Chemung Group: Burlington, Iowa.

Straparollus ammon White and Whitfield—Continued.

1865. *Straparollus ammon*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 132.
Millstone Grit: Western New York.
1889. *Straparollus (Euomphalus) ammon*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 295.
Kinderhook Group: Burlington, Iowa.
1894. *Straparollus ammon*. Keyes, Mo. Geol. Surv., vol. 5, p. 158, pl. 51, fig. 6.
Lower Burlington L. S.: Louisiana, Missouri.

Straparollus barrisi Winchell.

1863. *Straparollus Barrisi*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 20.
Yellow S. S.: Burlington, Iowa.
1889. *Straparollus barrisi*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 295.
Kinderhook Group: Burlington, Iowa.
1890. *Straparollus barrisi*. Keyes, Am. Geol., vol. 5, p. 195, pl., figs. 5a-c.
Kinderhook Group: Southeastern Iowa.

Straparollus blairi Miller.

1891. *Straparollus blairi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 86,
pl. 15, fig. 3.
Chouteau L. S.: Sedalia, Missouri.
1892. *Straparollus blairi*. Miller, 17th Rep. Geol. Surv. Ind., p. 696, pl. 15, fig. 3.
Chouteau L. S.: Sedalia, Missouri.

Straparollus boonensis Swallow.

1863. *Euomphalus Boonensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 99.
Encinital L. S.: Missouri.

Straparollus catilloides Conrad.

- *1842. *Inachus catilloides* Conrad, Jour. Acad. Nat. Sci. Phil. (1), vol. 8, p. 273.
Coal Measures.
1858. *Euomphalus rugosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 722, pl. 29, figs. 14a-c.
Coal Measures: Illinois.
1866. *Serpula (Spirorbis) Planorbites*. Geinitz, Carb. und Dyas in Nebr., p. 3, tab. 1,
fig. 6.
Nebraska.
1872. *Straparollus (Euomphalus) rugosus*. Meek, U. S. Geol. Surv. Nebr., p. 230,
pl. 6, figs. 5a, b, pl. 11, figs. 4a, b.
Upper Coal Measures: Nebraska City, Rock Bluff, Aspinwall, and Cedar
Bluff, Nebraska.
Coal Measures: Kansas; Missouri; Iowa; Illinois.
1873. *Straparollus (Euomphalus) subrugosus*. Meek and Worthen, Geol. Surv. Ill.,
vol. 5, p. 607, pl. 29, fig. 11.
Coal Measures: Springfield, Illinois.
1874. *Euomphalus rugosus*. Meek, Am. Jour. Sci. (3), vol. 7, p. 583.
1884. *Euomphalus (Straparollus) subrugosus*. Walcott, Pal. Eureka Dist., p. 255,
pl. 18, fig. 19.
Lower Carboniferous: Eureka District, Nevada.
1884. *Euomphalus rugosus*. White, 13th Rep. Geol. Surv. Ind., p. 161, pl. 32,
figs. 11, 12.
Coal Measures: Indiana.
1888. *Euomphalus rugosus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 241.
Lower Coal Measures: Des Moines, Iowa.
1891. *Straparollus catilloides*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 255.
Lower Coal Measures: Des Moines, Iowa.
1894. *Straparollus catilloides*. Keyes, Mo. Geol. Surv., vol. 5, p. 160.
Upper Coal Measures: Kansas City, Missouri; Atchison, Kansas.

Straparollus cornudanus Shumard.

1859. *Straparollus Cornudanus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 400.
Coal Measures: Sierra Cornudanus, and 4 miles west of Sierra Hueco, El Paso County, Texas.

Straparollus exortivus Dawson.

1868. *Euomphalus exortivus*. Dawson, Acad. Geol., p. 308, fig. 118.
Carboniferous L. S.: East River, Pictou, Nova Scotia.

Straparollus latus Hall.

1858. *Euomphalus latus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 605, pl. 12, figs. 7a, b.
Burlington L. S.: Burlington, Iowa; Quincy, Illinois.
1888. *Euomphalus latus?* Herrick, Bull. Den. Univ., vol. 3, p. 87, pl. 12, fig. 26.
Waverly Group: Licking County, Ohio.
1888. *Euomphalus latus*. Herrick, Bull. Den. Univ., vol. 4, pl. 7, fig. 5.
Waverly Group: Ohio.
1889. *Straparollus latus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 292.
Burlington L. S.: Burlington, Iowa.
1890. *Straparollus latus*. Keyes, Am. Geol., vol. 5, p. 196, pl., figs. 1a, b.
Lower Burlington L. S.: Southeastern Iowa.
1894. *Straparollus latus*. Keyes, Mo. Geol. Surv., vol. 5, p. 158, pl. 51, fig. 9.
Burlington L. S.: Springfield, Ash Grove, Osceola, Louisiana, and Hannibal, Missouri.
1895. *Euomphalus latus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 18, fig. 5.
Kinderhook freestone: Granville, Ohio.

Straparollus lens Hall.

1860. *Euomphalus lens*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 109.
Goniatite L. S.: Rockford, Indiana.
1866. *Straparollus lens*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 159, pl. 14, figs. 7a, b.
Chouteau L. S.: Moniteau County, Missouri; Illinois.
1894. *Pleurotomaria lens*. Keyes, Mo. Geol. Surv., vol. 5, p. 134.
Chouteau L. S.: Moniteau County, Missouri.

Straparollus luxus White.

1877. *Euomphalus luxus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 94, pl. 5, figs. 13a, b.
Subcarboniferous: Ophir City, Utah.
1877. *Euomphalus luxus*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 260, pl. 4, figs. 24, 25.
Near base of Wasatch L. S. (Waverly): Dry Canyon, Oquirrh Mountains, and Logan Canyon, Wahsatch range, Utah.

Straparollus macromphalus Winchell.

1863. *Straparollus macromphalus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 20.
Yellow S. S.: Burlington, Iowa.
1865. *Straparollus macromphalus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 132.
Bed No. 1, and Oolite bed No. 6: Burlington, Iowa.
1889. *Straparollus macromphalus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 295.
Kinderhook Group: Burlington, Iowa.
1890. *Straparollus macromphalus*. Keyes, Am. Geol., vol. 5, p. 197, pl., figs. 4a-c.
Kinderhook Group: Southeastern Iowa.

Straparollus magnificus Shumard.

1863. *Straparollus magnificus*. Shumard, Trans. St. Louis Acad. Sci., vol. 2, p. 110.
Carboniferous: Kentucky.
1891. *Straparollus magnificus*. Anon., Trans. St. Louis Acad. Sci., vol. 5, pl. 15, figs. 1-3.
Carboniferous: Kentucky.

Straparollus missouriensis Miller and Gurley.

1896. *Straparollus missouriensis*. Miller and Gurley, Bull. No. 11. Ill. State Mus. Nat. Hist., p. 20, pl. 2, figs. 35, 36.
Chouteau L. S.: Sedalia, Missouri.

Straparollus obtusus Hall.

1858. *Euomphalus obtusus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 523.
Chemung Group: Burlington, Iowa.
1889. *Straparollus obtusus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 296.
Kinderhook Group: Burlington, Iowa.
1890. *Straparollus obtusus*. Keyes, Am. Geol., vol. 5, p. 197, pl., figs. 2a-c.
Kinderhook Group (Oolite): Southeastern Iowa.
1894. *Straparollus obtusus*. Keyes, Mo. Geol. Surv., vol. 5, p. 157, pl. 51, fig. 5.
Lower Burlington L. S.: Louisiana and Hannibal, Missouri.

Straparollus ophirensis Hall and Whitfield.

1877. *Euomphalus (Straparollus) ophirensis*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 261, pl. 4, figs. 26, 27.
Waverly Group: Dry Canyon, Oquirrh Mountains, Utah.

Straparollus pernodosus Meek and Worthen.

1870. *Straparollus (Euomphalus) pernodosus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 45.
Lower Coal Measures: Alton, Illinois.
1873. *Straparollus (Euomphalus) pernodosus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 604, pl. 29, fig. 14.
Lower Coal Measures: Alton, Illinois.
1877. *Euomphalus pernodosus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 158, pl. 12, figs. 2a, b.
Carboniferous: Mesa, Carrizo River, Arizona.
1888. *Euomphalus pernodosus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 241.
Lower Coal Measures: Des Moines, Iowa.
1891. *Straparollus pernodosus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 256.
Lower Coal Measures: Des Moines, Iowa.
1894. *Straparollus pernodosus*. Keyes, Mo. Geol. Surv., vol. 5, p. 161.
Upper Coal Measures: Kansas City, Missouri.

Straparollus planidorsatus Meek and Worthen.

1860. *Euomphalus planidorsatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 462.
Chester L. S.: Thompson's quarry, Randolph County, Illinois.
1863. *Euomphalus perspectivus*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 98.
Kaskaskia L. S.
1866. *Straparollus planidorsatus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 302, pl. 24, figs. 2a-c.
Chester Group: Thompson's quarry, Randolph County, Illinois.
1894. *Straparollus planidorsatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 160.
Kaskaskia L. S.: Ste. Mary, Missouri.

Straparollus planispira Hall.

1856. *Euomphalus planispira*. Hall, Trans. Albany Inst., vol. 4, p. 20.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana.
1882. *Euomphalus planispira*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 70, pl. 8, figs. 22, 23.
St. Louis Group: Spergen Hill, Paynter's Hill, and Bloomington, Indiana.
1883. *Euomphalus planispira*. Hall, 12th Rep. Geol. Surv. Ind., p. 351, pl. 31, figs. 22, 23.
St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.

Straparollus quadrivolvus Hall.

1856. *Euomphalus quadrivolvus*. Hall, Trans. Albany Inst., vol. 4, p. 19.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana.
1882. *Euomphalus quadrivolvus*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 71,
pl. 8, figs. 24, 25.
St. Louis Group: Spergen Hill, Paynter's Hill, and Bloomington, Indiana.
1883. *Euomphalus quadrivolvus*. Hall, 12th Rep. Geol. Surv. Ind., p. 349, pl. 31,
figs. 24, 25.
St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.

Straparollus roberti White.

1862. *Euomphalus roberti*. White, Proc. Boet. Soc. Nat. Hist., vol. 9, p. 22.
Upper Burlington L. S.: Burlington, Iowa.
1889. *Straparollus roberti*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 291.
Burlington L. S.: Burlington, Iowa.
1890. *Straparollus roberti*. Keyes, Am. Geol., vol. 5, p. 197, pl., figs. 3a, b.
Upper Burlington L. S.: Southeastern Iowa.

Straparollus similis Meek and Worthen.

1861. *Straparollus similis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 145.
St. Louis L. S.: Waterloo, Monroe County, Illinois.
1866. *Straparollus similis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 285,
pl. 19, figs. 4a, b.
St. Louis Group: Waterloo, Monroe County, Illinois.
1891. *Straparollus similis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 589, pl. 14,
figs. 9-11.
Maxville L. S.: Newtonville and near Maxville, Ohio.
1895. *Straparollus similis*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 476, pl. 10,
figs. 9-11.
Maxville L. S.: Maxville and Newtonville, Ohio.
1897. *Straparollus similis* (?). Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 270.
Batesville S. S.: Batesville, Arkansas.

Straparollus similis var. planus Meek and Worthen.

1861. *Straparollus similis* var. *planus*. Meek and Worthen, Proc. Acad. Nat. Sci.
Phil., p. 146.
St. Louis L. S.: Waterloo, Monroe County, Illinois.
1866. *Straparollus similis* var. *planus*. Meek and Worthen, Geol. Surv. Ill. vol. 2,
p. 286, pl. 19, figs. 5a-c.
St. Louis Group: Waterloo, Monroe County, Illinois.

Straparollus spergenensis Hall.

1856. *Euomphalus Spergenensis*. Hall, Trans. Albany Inst., vol. 4, p. 19.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana.
1882. *Euomphalus Spergenensis*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 69,
pl. 8, figs. 16-19.
St. Louis Group: Spergen Hill, Paynter's Hill, Bloomington, and Ellettsville, Indiana.
1883. *Euomphalus Spergenensis*. Hall, 12th Rep. Geol. Surv. Ind., p. 350, pl. 31,
figs. 16-19.
St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.
1894. *Straparollus spergenensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 159.
St. Louis L. S.: St. Louis, Missouri.

Straparollus spergenensis var. planorbiformis Hall.

1856. *Euomphalus Spergenensis* var. *planorbiformis*. Hall, Trans. Albany Inst.,
vol. 4, p. 20.
St. Louis L. S.: Bloomington and Spergen Hill, Indiana.

Straparollus spergenensis var. **planorbiformis** Hall—Continued.

1882. *Euomphalus Spergenensis* var. *planorbiformis*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 70, pl. 8, figs. 20, 21.
St. Louis Group: Spergen Hill, Paynter's Hill, and Bloomington, Indiana.
1883. *Euomphalus Spergenensis* var. *planorbiformis*. Hall, 12th Rep. Geol. Surv. Ind., p. 351, pl. 31, figs. 20, 21.
St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.

Straparollus spirorbis Hall.

1860. *Euomphalus spirorbis*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 109.
Goniatite L. S.: Rockford, Indiana.
1888. *Euomphalus (spirorbis?)* Herrick, Bull. Den. Univ., vol. 3, p. 88, pl. 2, fig. 33.
Waverly Group: Licking County, Ohio.

Straparollus springvalensis. See *Omphalotrochus springvalensis*.**Straparollus subquadratus** Meek and Worthen.

1870. *Straparollus (Euomphalus) subquadratus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 46.
Upper Coal Measures: Montgomery County, Illinois.
1873. *Straparollus (Euomphalus) subquadratus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 605, pl. 29, figs. 12, 13.
Upper Coal Measures: Montgomery County, Illinois.
1877. *Euomphalus subquadratus*. Herrick, Bull. Den. Univ., vol. 2, p. 147, pl. 14, fig. 9.
Coal Measures: Flint Ridge, Ohio.
1891. *Euomphalus subquadratus*. White, Bull. U. S. Geol. Surv., No. 77, p. 25, pl. 3, fig. 9.
Permian: Military Crossing, Baylor County, Texas.
1894. *Straparollus subquadratus*. Keyes, Mo. Geol. Surv., vol. 5, p. 162.
Upper Coal Measures: Kansas City, Missouri.
1897. *Euomphalus (Straparollus) subquadratus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 40.
Lower Coal Measures: White County, Arkansas.

Straparollus subumbilicatus Worthen.

1890. *Straparollus sub-umbilicatus*. Worthen, Geol. Surv. Ill., vol. 8, p. 142, pl. 24, figs. 3-3b.
Chester Group: Near Evansville, Randolph County, Illinois.

Straparollus umbilicatus Meek and Worthen.

1860. *Euomphalus umbilicatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 462.
Lower Coal Measures: St. Clair County, Illinois.
1866. *Straparollus umbilicatus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 362, pl. 29, figs. 1a-c.
Lower Coal Measures: St. Clair County, Illinois.

Straparollus utahensis Hall and Whitfield.

1877. *Euomphalus (Straparollus) Utahensis*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 259, pl. 4, figs. 20-23.
Near base of Wahsatch L. S. (Waverly): Dry Canyon, Oquirrh Mountains, Ogden and Logan Canyons, Wahsatch range, Utah.

Straparollus varsoviensis Worthen.

1890. *Straparollus varsoviensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 142, pl. 25, figs. 2, 2a.
Keokuk L. S.: Warsaw, Illinois.

Straparollus (species undetermined).

1859. *Straparollus* sp. (†) Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 399.
Gray Permian L. S.: Guadalupe Mountains.
1868. *Euomphalus* (resembles *E. quadratus* McCoy). Dawson, Acad. Geol., p. 308.
Carboniferous L. S.: Windsor and Gays River, Nova Scotia.
1876. *Euomphalus* — ? —. White, Powell's Rep. Geol. Uinta Mts., p. 91.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1887. *Euomphalus* sp. † Herrick, Bull. Den. Univ., vol. 2, p. 22, pl. 2, figs. 4, 5;
pl. 5, fig. 5.
Coal Measures: Flint Ridge, Ohio.
1887. *Straparollus*? Herrick, Bull. Den. Univ., vol. 2, pl. 14, fig. 3.
Coal Measures: Flint Ridge, Ohio.
1888. *Euomphalus* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 7, fig. 17.
Waverly Group: Licking County, Ohio.
1891. *Euomphalus* — ? — White, Bull. U. S. Geol. Surv., No. 77, p. 25.
Permian: Military Crossing, Baylor County, Texas.
1897. *Euomphalus* (*Straparollus*) sp. Smith, Proc. Am. Phil. Soc., vol. 35, p. 40.
Lower Coal Measures: Independence County, Arkansas,

STREBLOPTERIA McCoy, 1851.**Streblopteria gracilis Herrick.**

1888. *Streblopteria gracilis*. Herrick, Bull. Den. Univ., vol. 3, p. 57, pl. 7, fig. 12.
Waverly Group: Licking County, Ohio.
1895. *Streblopteria gracilis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 15.
Kinderhook or Burlington: Ohio.

Streblopteria media Herrick.

1888. *Streblopteria media*. Herrick, Bull. Den. Univ., vol. 3, p. 56, pl. 3, figs. 4, 8, 9;
pl. 1, figs. 13, 19; pl. 7, figs. 2, 6.
Waverly Group: Licking County, Ohio.
1895. *Streblopteria media*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, figs. 16, 17.
Cuyahoga Shale: Moot's Run, Ohio.

Streblopteria similis Walcott.

1884. *Streblopteria similis*. Walcott, Pal. Eureka Dist., p. 230, pl. 8, figs. 4-4d;
pl. 19, fig. 7.
Lower Carboniferous: Eureka District, Nevada.

Streblopteria squama Herrick.

1888. *Streblopteria squama*. Herrick, Bull. Den. Univ., vol. 3, p. 57, pl. 7, fig. 14.
Waverly Group: Licking County, Ohio.
1895. *Streblopteria squama*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 14.
Cuyahoga Shale: Granville, Ohio.

Streblopteria tenuilineatus Meek and Worthen.

1860. *Pecten tenuilineatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 452.
Upper Coal Measures: South line of Clinton County, Illinois.
1866. *Streblopteria* ? *tenuilineata*. Meek and Worthen, Geol. Surv. Ill., vol. 2,
p. 334, pl. 26, figs. 9a, b.
Upper Coal Measures: South line of Clinton County, Illinois.

Streblopteria (species undetermined).

1888. *Streblopteria*. Herrick, Bull. Den. Univ., vol. 4, pl. 5, fig. 10.
Waverly Group: Gann, Ohio.
1888. *Streblopteria* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 5, fig. 15.
Waverly Group: Newark, Ohio.

Streblopteria (species undetermined)—Continued.

- 1889 *Streblopteria*. Herrick, Am. Geol., vol. 3, pl. 3, fig. 10.
 1889. *Streblopteria* sp. Herrick, Am. Geol., vol. 3, pl. 3, fig. 15.
 1895. *Streblopteria* sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 5.
 Kinderhook: Gann, Ohio.
 1895. *Streblopteria* sp. f. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 6.
 Burlington Group: Newark, Ohio.

STREBLOTRYPA Ulrich, 1890.**Streblotrypa amplexa Ulrich.**

1888. *Streblotrypa amplexa*. Ulrich, Bull. Den. Univ., vol. 4, p. 83, pl. 14, fig. 13.
 Waverly Group: Near Sciotoville, Ohio.

Streblotrypa denticulata Ulrich.

1888. *Streblotrypa* (? *Leioolema*) *denticulata*. Ulrich, Bull. Den. Univ., vol. 4, p. 88, pl. 14, figs. 18, 19.
 Cuyahoga Shale: Richfield and Lodi, Ohio.

Streblotrypa distincta Ulrich.

1890. *Streblotrypa distincta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 669, pl. 71, figs. 10-10b.
 Chester Group: Chester, Illinois.
 1894. *Streblotrypa distincta*. Keyes, Mo. Geol. Surv., vol. 5, p. 36.
 Kaskaskia L. S.: Chester, Illinois.

Streblotrypa hertzeri Ulrich.

1888. *Streblotrypa hertzeri*. Ulrich, Bull. Den. Univ., vol. 4, p. 85, pl. 14, fig. 8.
 Cuyahoga Shale: Richfield and Lodi, Ohio.
 Keokuk Group: Keokuk, Iowa.

Streblotrypa major Ulrich.

1888. *Streblotrypa major*. Ulrich, Bull. Den. Univ., vol. 4, p. 84, pl. 14, fig. 10.
 Cuyahoga Shale: Richfield, Ohio.
 Keokuk Group: King's Mountain, Kentucky; Keokuk, Iowa.
 1890. *Streblotrypa major*. Ulrich, Geol. Surv. Ill., vol. 8, p. 666, pl. 71, figs. 8-8d; pl. 72, figs. 1-1a.
 Keokuk Group: King's Mountain, Kentucky; Keokuk, Iowa; Nauvoo, Illinois.
 1894. *Streblotrypa major*. Keyes, Mo. Geol. Surv., vol. 5, p. 35.
 Keokuk L. S.: Keokuk, Iowa.

Streblotrypa multiporata Ulrich.

1888. *Streblotrypa multiporata*. Ulrich, Bull. Den. Univ., vol. 4, p. 87, pl. 14, fig. 11.
 Waverly Group: Moot's Run, Licking County, Ohio.

Streblotrypa nicklesi Ulrich.

1890. *Streblotrypa nicklesi*. Ulrich, Geol. Surv. Ill., vol. 8, p. 667, pl. 71, figs. 9-9c.
 Chester Group: Kaskaskia, Illinois; Sloan's Valley, Kentucky.
 1894. *Streblotrypa nicklesi*. Keyes, Mo. Geol. Surv., vol. 5, p. 36.
 Kaskaskia L. S.: Ste. Genevieve, Missouri.

Streblotrypa obliqua Ulrich.

1888. *Streblotrypa obliqua*. Ulrich, Bull. Den. Univ., vol. 4, p. 85, pl. 14, fig. 9.
 Cuyahoga Shale: Lodi, Ohio.

Streblotrypa radialis Ulrich.

1890. *Streblotrypa radialis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 667, pl. 72, figs. 2-2d.
 Keokuk Group: Near Nauvoo, Illinois; Bentonsport, Iowa.
 1894. *Streblotrypa radialis*. Keyes, Mo. Geol. Surv., vol. 5, p. 35.
 Keokuk L. S.: Bentonsport, Iowa.

Streblotrypa regularis Ulrich.

1888. *Streblotrypa regularis*. Ulrich, Bull. Den. Univ., vol. 4, p. 88, pl. 14, fig. 14.
Cuyahoga Shale: Cuyahoga County and Burbank, Ohio.

Streblotrypa striata Ulrich.

1888. *Streblotrypa striata*. Ulrich, Bull. Den. Univ., vol. 4, p. 87, pl. 14, figs. 12, 12a.
Cuyahoga Shale: Richfield, Ohio.

Streblotrypa subspinosa Ulrich.

1890. *Streblotrypa subspinosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 668, pl. 71, figs. 7, 7a.
Chester Group: Chester, Illinois: Sloan's Valley, Kentucky.

STREPTAXIS Gray, 1837.**Streptaxis whitfieldi** Meek.

1871. *Streptaxis whitfieldi*. Meek, Proc. Acad. Nat. Sci. Phil., p. 173.
Coal Measures: Danville, Illinois.
1873. *Streptaxis Whitfieldi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 596,
pl. 29, fig. 1.
Coal Measures: Danville, Illinois.
1888. *Streptaxis whitfieldi*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 241.
Lower Coal Measures: Des Moines, Iowa.

(STREPTODISCUS Miller, 1892.)

Streptodiscus indianensis Miller. See *Nautilus indianensis*.

STREPTORHYNCHUS King, 1850.

Streptorhynchus æquivalvis. See *Orthothetes inæqualis*.

Streptorhynchus biloba. See *Derbya biloba*.

Streptorhynchus crassum. See *Derbya crassa*.

Streptorhynchus crenistria. See *Orthothetes crenistria* and *Derbya crassa*.

Streptorhynchus equivalvis. See *Orthothetes inæqualis*.

Streptorhynchus inequalis. See *Orthothetes inæqualis*.

Streptorhynchus inflatus. See *Orthothetes inflatus*.

Streptorhynchus keokuk. See *Derbya keokuk*.

Streptorhynchus lens. See *Orthothetes lens*.

Streptorhynchus occidentalis. See *Meekella occidentalis*.

Streptorhynchus pyramidale. See *Meekella pyramidale*.

Streptorhynchus richmondi. See *Derbya crassa*.

Streptorhynchus robusta. See *Derbya robusta*.

Streptorhynchus shumardianus. See *Meekella striato-costata*.

Streptorhynchus striatocostata. See *Meekella striato-costata*.

Streptorhynchus ulrichi Hall and Clarke.

1892. *Streptorhynchus Ulrichi*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 351,
pl. 11B, fig. 15.
Chester L. S.: Crittenden County, Kentucky.
1897. *Streptorhynchus Ulrichi*. Hall, 14th Rep. N. Y. State Geol., p. 350, pl. 6, fig. 3.
Chester L. S.: Crittenden County, Kentucky.

Streptorhynchus umbraculum. See *Orthothetes umbraculum*, *Orthothetes crenistria*, and *Derbya crassa*.

***Streptorhynchus williamsi* Weller.**

1897. *Streptorhynchus williamsi*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 255, pl. 18, figs. 1-3.

Batesville S. S.: Batesville, Arkansas.

STRIATOPORA Hall, 1852.

***Striatopora carbonaria* White.**

1862. *Striatopora carbonaria*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 32.

Upper and Lower Burlington L. S.: Burlington, Iowa.

1894. *Striatopora carbonaria*. Keyes, Mo. Geol. Surv., vol. 4, p. 121, pl. 14, fig. 7.

Burlington L. S.: Ste. Genevieve and Hamilton, Missouri; Burlington, Iowa.

STRICKLANDINIA Billings, 1859.

***Stricklandinia* (?) *subquadrata* Herrick.**

1887. *Stricklandinia* (?) *subquadrata*. Herrick, Bull. Den. Univ., vol. 2, p. 49, pl. 1, figs. 14, 14a.

Coal Measures: Flint Ridge, Ohio.

STROBOCERAS Hyatt, 1883.

***Stroboceras hartti* Dawson.**

1868. *Gyroceras Harttii*. Dawson, Acad. Geol., p. 311, fig. 125.

Carboniferous L. S.: Windsor, Nova Scotia.

1883. *Discites Hartii*. Dawson, Rep. Peter Redpath Mus., No. 2, p. 10.

Lower Carboniferous L. S.: Brookfield, Nova Scotia.

1883. *Stroboceras Hartii*. Hyatt, Proc. Bost. Soc. Nat. Hist., vol. 22, p. 291.

***Stroboceras trigonus* Winchell.**

1862. *Nautilus (Trematodiscus) trigonus*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 359.

Marshall S. S.: Marshall, Michigan.

1893. *Stroboceras (Naut.) trigonus*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 412.

***Stroboceras trisulcatus* Meek and Worthen.**

1860. *Nautilus (Discus) trisulcatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 470.

Goniatite Beds: Rockford, Indiana.

1861. *Nautilus trisulcatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 148.

1866. *Nautilus (Trematodiscus) trisulcatus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 162, pl. 14, figs. 10a-c.

Goniatite Bed: Rockford, Indiana.

1870. *Nautilus (Trematodiscus) trisulcatus*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 258.

Waverly Group: Rockville, Ohio.

1893. *Stroboceras (Tremat.) trisulcatum*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 412.

STROPHALOSIA King, 1844.

***Strophalosia beecheri* Rowley.**

1893. *Strophalosia beecheri*. Rowley, Am. Geol., vol. 12, p. 308, pl. 14, figs. 18, 19.

Louisiana (Lithographic) L. S.: Louisiana, Missouri.

***Strophalosia cymbula* Hall and Clarke.**

1892. *Strophalosia cymbula*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17A, figs. 3, 4, 8, 9.

Keokuk Group: Lebanon, Kentucky, and south of Louisville, Kentucky.

1897. *Strophalosia cymbula*. Hall, 14th Rep. N. Y. State Geol., p. 355, pl. 7, fig. 5.

Keokuk Group: Lebanon, Kentucky.

***Strophalosia guadalupensis* Shumard.**

1858. *Aulosteges Guadalupensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 292.

White Permian L. S.: Guadalupe Mountains.

1859. *Strophalosia (Aulosteges) Guadalupensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 390, pl. 11, figs. 5a, b.

Permian White L. S.: Guadalupe Mountains.

Strophalosia horrescens. See *Productus nebrascensis*.

***Strophalosia keokuk* Beecher.**

1890. *Strophalosia Keokuk*. Beecher, Am. Jour. Sci. (3), vol. 40, p. 244, pl. 9, figs. 18-24.

Keokuk Shales: Crawfordsville, Indiana.

1892. *Strophalosia Keokuk*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17A, figs. 5-7.

Keokuk Group: Crawfordsville, Indiana.

***Strophalosia nummularis* Winchell.**

1863. *Strophalosia ? nummularis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 4.

Yellow S. S.: Burlington, Iowa.

***Strophalosia scintilla* Beecher.**

1890. *Strophalosia scintilla*. Beecher, Am. Jour. Sci. (3), vol. 40, p. 243, pl. 9, figs. 10-13.

Chouteau L. S.: Pike County, Missouri.

1892. *Strophalosia scintilla*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 15B, figs. 32-34.

Chouteau L. S.: Pike County, Missouri.

***Strophalosia spondyliiformis* White and St. John.**

1868. *Aulosteges spondyliiformis*. White and St. John, Trans. Chicago Acad. Sci., vol. 1, p. 118, fig. 2.

Upper Coal Measures: Appanoose and Pottawattamie counties, Iowa.

1890. *Strophalosia spondyliiformis*. Beecher, Am. Jour. Sci. (3), vol. 40, p. 242.

1892. *Strophalosia spondyliiformis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17A, figs. 25, 26.

Coal Measures: Missouri.

***Strophalosia* (species undetermined).**

1892. *Strophalosia* sp. ? Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 15B, fig. 35.

Chouteau L. S.: Pike County, Missouri.

(STROPHOMENA Rafinesque, 1825.)

Strophomena analoga. See *Leptaena analoga*.

***Strophomena nassuta* Conrad.**

1846. *Strophomena nassuta*. Conrad, Proc. Acad. Nat. Sci. Phil., p. 23.

Carboniferous: Jersey Shore, Lycoming County, Pennsylvania.

Strophomena rhomboidalis. See *Leptaena rhomboidalis*.

STROPHOSTYLUS Hall, 1859.

Strophostylus bivolve White and Whitfield.

1862. *Platyceras bivolve*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 302.
Chemung Group: Burlington, Iowa.
1888. *Platyceras bivolve?* Herrick, Bull. Den. Univ., vol. 3, p. 92.
Waverly Group: Licking County, Ohio.
1889. *Platystoma bivolve*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 293.
Kinderhook Group: Burlington, Iowa.
1890. *Platystoma bivolve*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 179.
1894. *Strophostylus bivolvis*. Keyes, Mo. Geol. Surv., vol. 5, pl. 53, fig. 4.

• **Strophostylus carleyana** Hall.

1856. *Natica Carlyana*. Hall, Trans. Albany Inst., vol. 4, p. 31.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana; Alton, Illinois.
1882. *Naticopsis Carleyana*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 71, pl. 8, figs. 26, 27.
St. Louis Group: Spergen Hill and Bloomington, Indiana; Alton, Illinois.
1883. *Naticopsis Carleyana*. Hall, 12th Rep. Geol. Surv. Ind., p. 369, pl. 31, figs. 26, 27.
St. Louis Group: Alton, Illinois; Spergen Hill and Bloomington, Indiana.
1894. *Strophostylus? carleyana*. Keyes, Mo. Geol. Surv., vol. 5, p. 196.
St. Louis L. S.: Alton, Illinois.

Strophostylus grayvillensis Worthen.

1860. *Platystoma? tumida*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 463. (Name preoccupied.)
Coal Measures: Grayville, Illinois.
1866. *Pleurotomaria? tumida*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 361, pl. 31, figs. 1a, b.
Upper Coal Measures: Grayville, Illinois.
1882. *Platystoma Grayvillensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 38.

Strophostylus inornatus Walcott.

1884. *Platystoma inornatum*. Walcott, Pal. Eureka Dist., p. 255, pl. 24, figs. 3, 3a.
Lower Carboniferous: Eureka District, Nevada.

Strophostylus madisonensis Worthen.

1884. *Naticopsis madisonensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 9.
St. Louis L. S.: Madison County, Illinois.
1890. *Naticopsis madisonensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 144, pl. 25, figs. 4-6.
St. Louis L. S.: Madison County, Illinois.

Strophostylus nana Meek and Worthen.

1860. *Platystoma nana*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 463.
Upper Coal Measures: Springfield, Illinois.
1861. *Naticopsis nana*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 148.
1866. *Naticopsis nana*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 365, pl. 31, figs. 4a, b.
Upper Coal Measures: Springfield, Illinois.
1877. *Naticopsis nana*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 159, pl. 12, figs. 4a, b.
Carboniferous: Camp Cottonwood, near Spring Mountain, Lincoln County, Nevada.
1884. *Naticopsis nana*. White, 13th Rep. Geol. Surv. Ind., p. 162, pl. 36, figs. 6, 7.
Middle and Upper Coal Measures: Indiana.

Strophostylus nana Meek and Worthen—Continued.

1888. *Naticopsis nana*. Herrick, Bull. Den. Univ., vol. 4, pl. 11, fig. 8.
Coal Measures: Fultonham, Ohio.
1891. *Naticopsis nana*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 257.
Lower Coal Measures: Des Moines, Iowa.
1894. *Strophostylus nana*. Keyes, Mo. Geol. Surv., vol. 5, p. 196.
Upper Coal Measures: Clinton and Kansas City, Missouri.
1897. *Naticopsis nana*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 40.
Upper Coal Measures: Sebastian County, Arkansas.

Strophostylus peoriensis McChesney.

1860. *Platystoma peoriensis*. McChesney, Desc. New. Pal. Foss., p. 62.
Upper Coal Measures: Peoria and Fulton counties, Illinois.
1865. *Platystoma peoriensis*. McChesney, Ill. New Spec. Foss., pl. 2, figs. 11a, b.
1868. *Platystoma peoriense*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 49,
pl. 2, figs. 11a, b.
Upper Coal Measures L. S.: Peoria and Fulton counties, Illinois.
1894. *Strophostylus peoriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 197, pl. 52, fig. 6.
Upper Coal Measures: Kansas City, Missouri.

Strophostylus remex White.

1876. *Naticopsis remex*. White, Powell's Rep. Geol. Uinta Mts., p. 109.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1880. *Naticopsis remex*. White, Cont. to Inv. Pal., No. 6, p. 139, pl. 34, fig. 6a.
Middle Carboniferous: Confluence of Grand and Green rivers, Utah.
1891. *Naticopsis remex*. White, Bull. U. S. Geol. Surv., No. 77, p. 24, pl. 3, fig. 10.
Permian: Military Crossing and Goodwin Creek, Baylor County, Texas.
1894. *Strophostylus remex*. Keyes, Mo. Geol. Surv., vol. 5, p. 197, pl. 55, figs. 7a, b.
Upper Coal Measures: Kansas City, Missouri.

Strophostylus reversum Hall.

1860. *Platyceras reversum*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 91.
Burlington L. S.
1868. *Platyceras* [?] *reversum*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 508,
pl. 15, figs. 4a, b.
Burlington L. S.: Boonville, Missouri.
1894. *Strophostylus reversum*. Keyes, Mo. Geol. Surv., vol. 5, p. 195.
Keokuk L. S.: Boonville, Missouri.

Strophostylus subovatus Worthen.

1873. *Naticopsis subovatus*. Worthen, Geol. Surv. Ill., vol. 5, p. 595, pl. 28, fig. 9.
Upper Coal Measures: Lasalle, Illinois.

STROTOCRINUS Meek and Worthen, 1866.

Strotocrinus asper. See *Physetocrinus asper*.

Strotocrinus asperrimus. See *Actinocrinus asperrimus*.

Strotocrinus blairi Miller and Gurley.

1895. *Strotocrinus blairi*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist.,
p. 48, pl. 2, fig. 24.
Burlington Group: Sedalia, Missouri.

Strotocrinus bloomfieldensis. See *Strotocrinus regalis*.

Strotocrinus dilatatus. See *Physetocrinus dilatatus*.

Strotocrinus ectypus. See *Cactocrinus ectypus*.

Strotocrinus glyptus Hall.

1860. *Actinocrinus glyptus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 2.
Burlington L. S.: Burlington, Iowa.

Strotocrinus glyptus Hall—Continued.

1897. *Strotocrinus glyptus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 640, pl. 60, figs. 1a-c; pl. 65, figs. 2a, b.
Upper Burlington L. S.: Burlington, Iowa; Missouri.

Strotocrinus liratus. See *Teleiocrinus liratus*.**Strotocrinus ornatus** Miller and Gurley.

1896. *Strotocrinus ornatus*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 30, pl. 2, figs. 12-14.
Burlington Group: Near Burlington, Iowa.

Strotocrinus perumbrosus. See *Strotocrinus regalis*.**Strotocrinus regalis** Hall.

1860. *Actinocrinus regalis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 8.
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus perumbrosus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 7.
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus speciosus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 386.
Burlington L. S.: Three miles west of Burlington, Iowa.
1866. *Strotocrinus perumbrosus?* Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 188, fig. 5.
1866. *Strotocrinus regalis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 191, fig. 6, p. 192, fig. 7, pl. 16, figs. 6a, b.
Burlington L. S.: Burlington, Iowa.
1873. *Strotocrinus perumbrosus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 357, pl. 8, fig. 4.
Burlington L. S.: Burlington, Iowa.
1880. *Strotocrinus bloomfieldensis*. Miller, Jour. Cin. Soc. Nat. Hist., vol. 2, p. 258, pl. 15, figs. 6, 6a.
Keokuk Group: New Bloomfield, Missouri.
1894. *Strotocrinus regalis*. Keyes, Mo. Geol. Surv., vol. 4, p. 193, pl. 24, fig. 9.
Upper Burlington L. S.: Ash Grove, New Bloomfield, and Hannibal, Missouri.
1897. *Strotocrinus regalis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 638, pl. 65, figs. 1a-d.
Upper Burlington L. S.: Burlington, Iowa; Quincy, Illinois; Hannibal, Missouri.

Strotocrinus umbrosus. See *Teleiocrinus umbrosus*.**Strotocrinus venustus** Miller and Gurley.

1894. *Strotocrinus venustus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 26, pl. 6, fig. 1.
Burlington Group: Burlington, Iowa.

STROTOPORA Ulrich, 1890.**Strotopora dermatata** Ulrich.

1890. *Strotopora dermatata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 488, pl. 77, figs. 8, 8a.
Keokuk Group: Keokuk, Iowa; Warsaw, Illinois.
1894. *Strotopora dermatata*. Keyes, Mo. Geol. Surv., vol. 5, p. 17.
Keokuk L. S.: Keokuk, Iowa.

Strotopora faveolata Ulrich.

1890. *Strotopora faveolata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 487, pl. 77, figs. 9, 9a.
Keokuk Group: Bentonport, Iowa; Warsaw, Illinois.

Strotopora faveolata Ulrich—Continued.

1894. *Strotopora faveolata*. Keyes, Mo. Geol. Surv., vol. 5, p. 17.

Keokuk L. S.: St. Francisville, Missouri; Warsaw, Illinois; Bentonsport, Iowa.

STYLASTREA Lonsdale, 1845. -**Stylastrea inconferta** Lonsdale.

1855. *Stylastrea Inconferta*. Salter, Belcher's "Last of the Arctic Voyages," p. 381, pl. 36, fig. 4.

Carboniferous: Depot Point.

(STYLIFER Broderip, 1829.)

Stylifer primogenia. See *Sphærodome primogenia*.

SYNBATHOCRINUS Phillips, 1836.**Synbathocrinus angularis** Miller and Gurley.

1894. *Synbathocrinus angularis*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 42, pl. 4, figs. 3, 4.

Keokuk Group: Buttonmould Knob, Kentucky.

Synbathocrinus blairi Miller.

1891. *Synbathocrinus Blairi*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 32, pl. 4, figs. 13-15.

Keokuk Group: Boonville, Missouri.

Synbathocrinus brevis Meek and Worthen.

1869. *Synbathocrinus brevis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 68. Lower Burlington L. S.: Burlington, Iowa.

1873. *Synbathocrinus brevis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 439, pl. 2, fig. 6.

Burlington L. S.: Burlington, Iowa.

Synbathocrinus dentatus Owen and Shumard.

1852. *Synbathocrinus dentatus*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 93, pl. 11, figs. 7a, b.

Subcarboniferous L. S.: Burlington, Iowa.

1852. *Synbathocrinus dentatus*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 597, tab. 5B, figs. 7a, b.

Subcarboniferous L. S.: Burlington, Iowa.

1894. *Synbathocrinus dentatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 206, pl. 25, fig. 14. Burlington L. S.: Columbia, Springfield, and Ste. Genevieve, Missouri.

Synbathocrinus granuliferus Wetherby.

1890. *Synbathocrinus granuliferus* Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 250, pl. 16, figs. 3, 3a.

Kinderhook Group: King's Mountain Tunnel, Kentucky.

Synbathocrinus illinoisensis Miller and Gurley.

1896. *Synbathocrinus illinoisensis*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 53, pl. 3, figs. 29-31.

Burlington Group: Adams County, Illinois.

Synbathocrinus oweni Hall.

1860. *Synbathocrinus oweni*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 111.

Goniatite L. S.: Rockford, Indiana.

Synbathocrinus papillatus Hall.

- *1861. *Synbathocrinus papillatus*. Hall, Desc. New Spec. Crin., p. 18.
Burlington L. S.

Synbathocrinus robustus Shumard.

1865. *Synbathocrinus robustus*. Shumard, Trans. St. Louis Acad. Sci., vol. 2, p. 397.
Blue Marl (Keokuk): Buttonmould Knob, 7 miles south of Louisville,
Kentucky.
1875. *Synbathocrinus robustus*. Meek and Worthen, Geol. Surv. Ill., vol. 6, p. 514,
pl. 29, fig. 4.
Keokuk Group: Green County, Illinois; Buttonmould Knob, Kentucky.

Synbathocrinus swallowi Hall.

1858. *Synbathocrinus swallowi*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 672, pl. 17, figs. 8, 9.
St. Louis L. S.: Near St. Louis, Missouri.
1894. *Synbathocrinus swallowi*. Keyes, Mo. Geol. Surv., vol. 4, p. 207.
Keokuk L. S.: St. Louis County and Boonville, Missouri; Keokuk, Iowa.

Synbathocrinus wachsmuthi Meek and Worthen.

1869. *Synbathocrinus Wachsmuthi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 67.
Upper Burlington L. S.: Burlington, Iowa.
1873. *Synbathocrinus Wachsmuthi*. Meek and Worthen, Geol. Surv. Ill., vol. 5,
p. 437, pl. 2, fig. 5.
Burlington L. S.: Burlington, Iowa.
- See also *Catillocrinus wachsmuthi*.

Synbathocrinus wortheni Hall.

1858. *Synbathocrinus wortheni*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 560, pl. 9, fig. 9.
Burlington L. S.: Jersey Landing, Illinois.
1894. *Synbathocrinus wortheni*. Keyes, Mo. Geol. Surv., vol. 4, p. 206, pl. 25, fig. 15.
Burlington L. S.: Springfield and Hannibal, Missouri.

(SYNOCLADIA King, 1849.)

Synocladia biserialis Swallow. See *Septopora biserialis*.

Synocladia cestriensis Meek and Worthen. See *Septopora subquadrans*.

Synocladia rectistyla Whitfield. See *Septopora rectistyla*.

Synocladia virgulacea Swallow. See *Septopora biserialis*.

(SYNTRIELASMA Meek and Worthen, 1865.)

Syntrielasma hemiplicata. See *Enteleles hemiplicata*.

SYRINGOPORA Goldfuss, 1826.

Syringopora harveyi White.

1862. *Syringopora Harveyi*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 32.
Chemung Group and Lower Burlington, L. S.: Burlington, Iowa.
1874. *Syringopora Harveyi?* White, Prelim. Rep. Inv. Foss., p. 17.
Subcarboniferous: Ewells Spring, Arizona.
1877. *Syringopora Harveyi?* White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 80.
Subcarboniferous: Ewells Spring, Arizona.
1894. *Syringopora harveyi?* Keyes, Mo. Geol. Surv., vol. 4, p. 121, pl. 14, fig. 6a.
Keokuk L. S.: Boonville, Canton, and Curryville, Missouri.

Syringopora multattenuata McChesney.

1860. *Syringopora multattenuata*. McChesney, Desc. New Pal. Foss., p. 75.
Coal Measures: Eight miles south of Springfield, Illinois.
1865. *Syringopora multattenuata*. McChesney, Ill., New Spec. Foss., pl. 2, figs. 4, 4a.
1867. *Syringopora multattenuata*. McChesney, Trans. Chicago Acad. Sci., vol. 1,
p. 2, pl. 2, figs. 4, 4a.
Coal Measures: Eight miles south of Springfield, Illinois.
1872. *Syringopora multattenuata*. Meek, U. S. Geol. Surv. Nebr., p. 144, pl. 1;
figs. 5a-d.
Upper Coal Measures: Four miles up Platte River, north side; 8 miles
south of Springfield, Illinois.
1876. *Syringopora multattenuata*. White, Powell's Geol. Rep. Uinta Mts., p. 88.
Red Wall Group: Gypsum Canyon, Colorado River, Utah.
1877. *Syringopora multattenuata?* White, U. S. Geol. Surv. W. 100 Merid., vol. 4,
p. 100.
Carboniferous: Nevada and Utah.
1894. *Syringopora multattenuata*. Keyes, Mo. Geol. Surv., vol. 4, p. 122, pl. 14,
fig. 6b.
Upper Coal Measures: Kansas City, Missouri.

Syringopora (species undetermined).

1855. *Syringopora* (*Aulopora*). Salter, Belcher's "Last of the Arctic Voyages,"
p. 385, pl. 36, fig. 7.
Carboniferous: Depot Point.
1876. *Syringopora* —? White, Powell's Geol. Rep. Uinta Mts., p. 88.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1877. *Syringopora* (undet. sp.). Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 50, pl.
6, figs. 2, 2a.
Carboniferous L. S.: Southwest of Bald Mountain, Uinta Range; Morgan
Peak, Wasatch range, Utah.
1877. *Syringopora* (?) species. Whiteaves, Geol. Surv. Canada, Rep. of Prog.
1875-76, p. 98.
Devonian or Carboniferous: Fossil Point, Peace River, Canada.
1878. *Syringopora* sp. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 609.
Carboniferous: Feilden Isthmus, latitude 82° 43'.
1891. *Syringopora* —? White, Bul. U. S. Geol. Surv., No. 77, p. 29.
Permian: Camp Creek, Archer County, Texas; Goodwin Creek, Baylor
County, Texas.
1894. *Syringopora* sp.? Keyes, Mo. Geol. Surv., vol. 4, p. 122, pl. 14, fig. 5.
Kinderhook L. S.: Kinderhook, Illinois.

SYRINGOTHYRIS Winchell, 1863.**Syringothyris angulatus** Simpson.

1889. *Syringothyris angulata*. Simpson, Trans. Am. Phil. Soc., vol. 15, p. 440,
figs. 1-3.
Waverly Group: Near Warren, Pennsylvania.
1890. *Syringothyris angulata*. Schuchert, 9th Rep. N. Y. State Geol., p. 32.
Waverly Group: Near Warren, Pennsylvania.

Syringothyris carteri Hall.

1857. *Spirifer carteri*. Hall, 10th Rep. N. Y. State Cab. Nat. Hist., p. 170.
Waverly S. S.: Licking County, Ohio.
1860. *Spirifer* (*Cyrtia?*) *Hannibalensis*. Swallow, Trans. St. Louis Acad. Sci., vol.
1, p. 647.
Lithographic L. S.: Marion County, Missouri.

Syringothyris carteri Hall—Continued.

1863. *Syringothyris typa*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 7.
Base of Burlington L. S.: Burlington, Iowa.
1870. *Spirifera Carteri*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 252.
Waverly Group: Sciotoville and Rockville, Ohio; near Shafer's, Pennsylvania.
1870. *Syringothyris typa*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 252.
Waverly Group: Newark and Sciotoville, Ohio; near Shafer's, Pennsylvania.
1877. *Spirifer cuspidatus?* Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 87, pl. 3, figs. 11, 11a.
Carboniferous or Devonian L. S.: White Pine Mountains, Treasure Hill, Nevada.
1884. *Syringothyris cuspidata*. Walcott, Pal. Eureka Dist., p. 219.
Lower Carboniferous: Eureka District, Nevada; near Clendenin, Montana.
1888. *Syringothyris cuspidatus*. Herrick, Bull. Den. Univ., vol. 3, p. 41, pl. 1, fig. 7; pl. 2, fig. 17.
Waverly Group: Licking County, Ohio.
1890. *Syringothyris Carteri*. Schuchert, 9th Ann. Rep. N. Y. State Geol., p. 30.
Bedford Shale: Bedford, Ohio.
Waverly S. S.: Licking County, Ohio.
Chouteau L. S.: Marion and Pike Counties, Missouri.
Kinderhook Group: Burlington, Iowa.
Burlington Group: Burlington, Iowa.
Lower Carboniferous: White Pine Mountains, Richmond Mountain, Eureka District, Nevada; near Clendenin, Montana.
1894. *Syringothyris typa*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 30, figs. 1, 2.
Burlington L. S.: Burlington, Iowa.
1894. *Syringothyris carteri*. Keyes, Mo. Geol. Surv., vol. 5, p. 87, pl. 40, fig. 10.
Kinderhook Group: Clarksville, Louisiana, and Hannibal, Missouri.
Burlington L. S.: Springfield, Missouri.
1895. *Syringothyris Hannibalemsis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 25, figs. 33-35.
Chouteau L. S.: Pike County, Missouri.
1895. *Syringothyris typa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 26, figs. 6, 7, 10; pl. 27, figs. 1-3.
Burlington L. S.: Burlington, Iowa.

Syringothyris cuspidatus. See *Syringothyris carteri* and *Syringothyris hericki*.

Syringothyris extenuatus Hall.

1858. *Spirifer extenuatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 520, pl. 7, fig. 6.
Chemung Group: Burlington, Iowa.
1863. *Syringothyris Halli*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 8.
Yellow S. S.: Burlington, Iowa.
1865. *Spirifera extenuata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 119.
Marshall Group: Battle Creek and Hillsdale, Michigan.
1865. *Syringothyris Halli*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 119.
Marshall Group: Battle Creek, Michigan.
1870. *Spirifera extenuata*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 251.
Waverly Group: Newark, Ohio.
1874. *Spirifer (Syringothyris) extenuatus*. White, Prelim. Rep. Inv. Foss., p. 17.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
1877. *Spirifer extenuatus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 88, pl. 5, figs. 9a-d.

Syringothyris extenuatus Hall—Continued.

1877. Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
 1890. *Syringothyris extenuatus*. Schuchert, 9th Ann. Rep. N. Y. State Geol., p. 33.
 Kinderhook Group: Burlington, Iowa; Battle Creek, Michigan; Clarksville, Missouri; Mountain Spring, Old Mormon Road, Nevada.
 Waverly S. S.: Licking County, Ohio.
 1894. *Syringothyris extenuata*. Keyes, Mo. Geol. Surv., vol. 5, p. 86.
 Kinderhook L. S.: Clarksville, Missouri.

Syringothyris gigas Troost.

- *1841. *Cyrtia gigas*. Troost, 6th Geol. Rep. Tenn., p. 12.
 1890. *Syringothyris gigas*. Schuchert, 9th Ann. Rep. N. Y. State Geol., p. 33.
 Encrinital stratum, near the Harpeth River, Davidson County, Tennessee.

Syringothyris halli. See *Syringothyris extenuatus*.

Syringothyris hannibalensis. See *Syringothyris carteri*.

Syringothyris herricki Schuchert.

1888. *Syringothyris cuspidatus*. Herrick, Bull. Den. Univ., vol. 3, pl. 5, figs. 4-7.
 Waverly Group: Licking County, Ohio.
 1890. *Syringothyris herricki*. Schuchert, 9th Ann. Rep. N. Y. State Geol., p. 36.
 Waverly Group: Ohio.
 1895. *Syringothyris herricki*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 21, figs. 4-7.
 Kinderhook freestone: Granville, Ohio.

Syringothyris missouri Hall.

1894. *Syringothyris Missouri*. Hall, 13th Ann. Rep. N. Y. State Geol., p. 650.
 Chouteau L. S.: Chouteau Springs, Missouri.
 1895. *Syringothyris Missouri*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, p. 363,
 pl. 39, figs. 29-31.
 Chouteau L. S.: Chouteau Springs and Pike County, Missouri.
 1897. *Syringothyris Missouri*. Hall, 14th Rep. N. Y. State Geol., p. 358, pl. 8,
 figs. 14-16.
 Chouteau L. S.: Chouteau Springs, Missouri.

Syringothyris plena. See *Spirifer plenus*.

Syringothyris randalli Simpson.

1889. *Syringothyris randalli*. Simpson, Trans. Am. Phil. Soc., vol. 15, p. 441,
 figs. 1, 2.
 Chemung Group: Near Warren, Pennsylvania, and at Union City, Pennsylvania.
 1890. *Syringothyris randalli*. Schuchert, 9th Ann. Rep. N. Y. State Geol., p. 36.
 Waverly Group: Warren and Erie counties, Pennsylvania.
 1894. *Syringothyris Randallii*. Hall and Clarke, Int. to Study of Brach., pt. 2,
 pl. 30, figs. 10, 11.
 Waverly Group: Warren, Pennsylvania.
 1895. *Syringothyris Randallii*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 27,
 figs. 13-17.
 Waverly Group: Warren, Pennsylvania.

Syringothyris subcuspidatus. See *Syringothyris textus*.

Syringothyris textus Hall.

1857. *Spirifer textus*. Hall, 10th Rep. N. Y. State Cab. Nat. Hist., p. 169.
 Chemung S. S.: "The Knobs," near New Albany, Indiana.
 1858. *Spirifer subcuspidatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 646, pl. 20, figs. 5a, b.
 Keokuk L. S.: Keokuk, Iowa; Nauvoo and Warsaw, Illinois.
 1858. *Spirifer propinquus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 647.
 Keokuk L. S.: Keokuk, Iowa; Nauvoo and Warsaw, Illinois.

Syringothyris textus Hall—Continued.

1868. *Spirifer propinquus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 530, pl. 19, figs. 8a-c.
Keokuk Group: Near Warsaw, Illinois.
1875. *Spirifer Carteri*. Meek, Pal. Ohio, vol. 2, p. 285, pl. 14, figs. 7a-d.
Waverly Group: Sciotoville and Licking County, Ohio.
1881. *Spirifer textus*. White, 2d Ann. Rep. Dep. Stat. and Geol. Ind., p. 512, pl. 7, figs. 1, 2.
Knobstone Group: Near Providence and New Albany, Indiana.
1890. *Syringothyris texta*. Schuchert, 9th Ann. Rep. N. Y. State Geol., p. 34.
Waverly Group: Sciotoville, Ohio.
Knobstone Group: Near New Albany and New Providence, Indiana.
Keokuk Group: Crawfordsville, Indiana; Keokuk, Iowa; Warsaw and Nauvoo, Illinois.
1894. *Syringothyris subcuspidata*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 30, fig. 3.
Keokuk Group: Nauvoo, Illinois.
1894. *Syringothyris texta*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 30, figs. 4-9.
Keokuk Group: New Providence, Indiana.
1894. *Syringothyris texta*. Keyes, Mo. Geol. Surv., vol. 5, p. 88.
Keokuk L. S.: Keokuk, Iowa.
1895. *Syringothyris subcuspidatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 26, figs. 8, 11; pl. 27, fig. 18.
Keokuk L. S.: Keokuk, Iowa; Nauvoo, Illinois.
1895. *Syringothyris texta*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 26, figs. 9-12; pl. 27, figs. 4-12.
Keokuk Group: New Providence, Indiana.

Syringothyris typa. See *Syringothyris carteri*.

Syringothyris (species undetermined).

1888. *Syringothyris* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 3, fig. 7.
Waverly Group: Ohio.
1895. *Syringothyris*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 8.
(Waverly Group): Ohio.

TÆNIODICTYA Ulrich, 1890.**Tæniodictya cingulata Ulrich.**

1890. *Tæniodictya cingulata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 530, pl. 67, figs. 3-30.
Keokuk Group: Warsaw, Illinois.

Tæniodictya frondosa Ulrich.

1890. *Tæniodictya frondosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 529, pl. 67, fig. 5; pl. 69, figs. 5-5c.
Keokuk Group: Keokuk, Iowa.
1894. *Tæniodictya frondosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 22.
Keokuk L. S.: Keokuk, Iowa.

Tæniodictya interpolata Ulrich.

1888. *Tæniodictya interpolata*. Ulrich, Bull. Den. Univ., vol. 4, p. 80, pl. 13, figs. 9, 9a.
Cuyahoga Shale: Richfield, Ohio.

Tæniodictya ramulosa Ulrich.

1890. *Tæniodictya ramulosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 528, pl. 67, figs. 1-1b.
Keokuk Group: Keokuk, Iowa; Nauvoo and Warsaw, Illinois.
1894. *Tæniodictya ramulosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 22.
Keokuk L. S.: Keokuk, Iowa.

Tæniodictya ramulosa var. burlingtonensis Ulrich.

1890. *Tæniodictya ramulosa* var. *burlingtonensis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 529, pl. 67, figs. 2-2b.

Burlington L. S.: Burlington, Iowa.

Tæniodictya subrecta Ulrich.

1890. *Tæniodictya subrecta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 530, pl. 67, figs. 4-4d. St. Louis Group: Elizabethtown, Kentucky.

TAINOCERAS Hyatt, 1883.**Tainoceras cavatum** Hyatt.

1891. *Tainoceras cavatum*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 341, figs. 42-44. Carboniferous: Texas.

1893. *Tainoceras cavatum*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 398. Carboniferous: Ballinger, Texas.

Tainoceras duttoni Hyatt.

1893. *Tainoceras duttoni*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 401, figs. 3, 4. Carboniferous: Upper Valley of Zuni Plateau, 12 to 15 miles southwest of Grant's, a station on New Mexico, Arizona and Pacific Railroad.

Tainoceras occidentalis Swallow.

1858. *Nautilus occidentalis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 196. Permian: Valley of Cottonwood, Kansas.

1860. *Nautilus quadrangulus*. McChesney, Desc. New Pal. Foss., p. 65. Coal Measures, Grayville, Illinois.

1860. *Nautilus nodocarinatus*. McChesney, Desc. New Pal. Foss., p. 66. Coal Measures: Grayville, Illinois.

1860. *Nautilus biserialis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 92. Coal Measures: Iowa and Illinois.

1865. *Nautilus quadrangulus*. McChesney, Ill. New Spec. Foss., pl. 3, figs. 5a-b.

1865. *Nautilus nodocarinatus*. McChesney, Ill. New Spec. Foss., pl. 3, fig. a.

1868. *Nautilus occidentalis*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 51, pl. 3, figs. 5-7.

Coal Measures: Grayville, Illinois.

1872. *Nautilus occidentalis*. Meek, U. S. Geol. Surv. Nebr., p. 234, pl. 11, fig. 17. Upper Coal Measures: Nebraska City and Rock Bluff, Nebraska; Valley of Cottonwood Creek, Kansas; Grayville and Lasalle, Illinois. Coal Measures: Near Pittsburg, Pennsylvania. Lower Coal Measures: West Virginia.

1888. *Nautilus occidentalis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 242. Lower Coal Measures: Des Moines, Iowa.

1891. *Nautilus occidentalis*. White, Bull. U. S. Geol. Surv., No. 77, p. 23, pl. 2, figs. 11, 12.

Permian: Military Crossing of the Big Wichita, Baylor County, Texas.

1893. *Tainoceras quadrangulum*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 402, figs. 5-7.

Carboniferous: Military Crossing, Baylor County, Texas.

1894. *Nautilus occidentalis*. Keyes, Mo. Geol. Surv., vol. 5, p. 224. Upper Coal Measures: Kansas City, Missouri.

TALAROCRINUS Wachsmuth and Springer, 1881.**Talarocrinus cornigerus** Shumard.

1857. *Dichocrinus cornigerus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 72, pl. 1, figs. 1a, b.

1873. *Dichocrinus cornigerus*? Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 537, pl. 20, fig. 6.

St. Louis Group: Near Roseclare, Hardin County, Illinois.

Talarocrinus cornigerus Shumard—Continued.

1897. *Talarocrinus cornigerus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 783, pl. 78, figs. 6a, b, 7a, b.

St. Louis Group: Franklin County, Alabama; Tateville, Kentucky.

Talarocrinus decornis Wachsmuth and Springer.

1897. *Talarocrinus decornis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 788, pl. 78, figs. 3a-c.

St. Louis Group: Tateville, Pulaski County, Kentucky.

Talarocrinus ovatus Worthen.

1882. *Talarocrinus ovatus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 36. Chester L. S.: Monroe County, Illinois.

1883. *Talarocrinus ovatus*. Worthen, Geol. Surv. Ill., vol. 7, p. 314, pl. 29, fig. 11. Chester L. S.: Monroe County, Illinois.

1897. *Talarocrinus ovatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 787, pl. 78, figs. 2a, b.

(†) Kaskaskia Group: Monroe County, Illinois.

Talarocrinus patei Miller and Gurley.

1897. *Talarocrinus patei*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 44, pl. 3, figs. 9-12.

Kaskaskia Group: Breckinridge County, Kentucky.

Talarocrinus sexlobatus Shumard.

- *1857. *Dichocrinus sexlobatus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 73, pl. 1, figs. 3a-c.

1897. *Talarocrinus sexlobatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 784, pl. 78, figs. 1a-c.

St. Louis Group: Russellville, Kentucky; Logan County, Kentucky; Flagpond, Virginia.

Talarocrinus simplex Shumard.

- *1857. *Dichocrinus simplex*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 74, pl. 1, figs. 2a, b.

1858. *Dichocrinus simplex*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 654, pl. 22, figs. 12a, b. Warsaw L. S.: Spergen Hill, Indiana.

1860. *Dichocrinus simplex*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 1, figs. 4a-c.

1894. *Talarocrinus simplex*. Keyes, Mo. Geol. Surv., vol. 4, p. 205, pl. 25, fig. 6. St. Louis L. S.: Ste. Mary, Missouri.

1897. *Talarocrinus simplex*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 790, pl. 78, figs. 8a, b.

Warsaw L. S.: Spergen Hill, Indiana; St. Genevieve County, Missouri; Kentucky; Tennessee.

Talarocrinus subglobosus Wachsmuth and Springer.

1897. *Talarocrinus subglobosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 789, pl. 79, figs. 1a, b.

St. Louis Group: Tateville, Pulaski County, Kentucky.

Talarocrinus symmetricus Lyon and Casseday.

1862. *Dichocrinus symmetricus*. Lyon and Casseday, Proc. Am. Acad. Arts and Sci. Bost., vol. 5, p. 20.

Chester Group: Breckinridge, Grayson, Edmonson, Hart, and Warren Counties, Kentucky.

1862. *Dichocrinus elegans*. Lyon and Casseday, Proc. Am. Acad. Arts and Sci. Bost., vol. 5, p. 22.

Subcarboniferous: Edmonson County, near Mammoth Cave, Kentucky.

1897. *Talarocrinus symmetricus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 786, pl. 78, figs. 4a, b, 5.

St. Louis L. S.: Grayson, Edmonson, and Pulaski counties, Kentucky.

Talarocrinus trijugis Miller and Gurley.

1894. *Talarocrinus trijugis*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 45, pl. 3, figs. 9-11.

St. Louis Group: Rose Clare, Hardin County, Illinois.

TAXOCRINUS Phillips, 1843.**Taxocrinus communis** Hall.

1864. *Forbesiocrinus communis*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 55. Waverly Group: Richfield, Ohio.

1875. *Forbesiocrinus communis*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 169, pl. 12, figs. 3-5.

Waverly Group. Richfield, Ohio.

Taxocrinus crawfordsvillensis Miller and Gurley.

1894. *Taxocrinus crawfordsvillensis*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 49, pl. 4, fig. 3.

Keokuk Group: Crawfordsville, Ind.

Taxocrinus fletcheri Worthen.

1882. *Taxocrinus fletcheri*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 31. Kinderhook Group: Marshalltown, Iowa.

1883. *Taxocrinus Fletcheri*. Worthen, Geol. Surv. Ill., vol. 7, p. 308, pl. 30, fig. 2. Kinderhook Group: Marshalltown, Iowa.

1890. *Taxocrinus fletcheri*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 197, pl. 15, figs. 6, 9.

Kinderhook Group: Legrand, Iowa.

Taxocrinus giddingsi Hall.

1858. *Forbesiocrinus giddingsi*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 633, pl. 17, figs. 2-4.

Keokuk L. S.: Boonville, Missouri.

1894. *Taxocrinus giddingsi*. Keyes, Mo. Geol. Surv., vol. 4, p. 223.

Keokuk L. S.: Boonville, Missouri.

Taxocrinus intermedius Wachsmuth and Springer.

1890. *Taxocrinus intermedius*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 199, pl. 15, fig. 11.

Kinderhook Group: Legrand, Iowa.

Taxocrinus juvenis Hall.

1861. *Forbesiocrinus juvenis*. Hall, Desc. New Spec. Crin., p. 8.

Burlington L. S.

1861. *Forbesiocrinus juvenis*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 319.

Burlington L. S.: Burlington, Iowa.

1872. *Forbesiocrinus juvenis*. Hall, Photo. Plates of Crinoids, pl. 7, fig. 3.

1893. *Taxocrinus juvenis*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 35, pl. 3, figs. 21, 22.

Burlington L. S.: Burlington, Iowa.

Taxocrinus kelloggi Hall.

1864. *Forbesiocrinus kelloggi*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 56.

Waverly Group: Richfield, Ohio.

1875. *Forbesiocrinus Kelloggi*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 171, pl. 12, fig. 1.

Waverly Group: Richfield, Ohio.

Taxocrinus meeki Hall.

1858. *Forbesiocrinus meeki*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 631, pl. 17, fig. 3.

Keokuk L. S.: Warsaw, Illinois.

Taxocrinus multibrachiatus Lyon and Casseday.

1859. *Forbesiocrinus multibrachiatus*. Lyon and Casseday. Am. Jour. Sci. (2), vol. 28, p. 235.
Subcarboniferous L. S. (Knobstone): Clear Creek, Hardin County, Kentucky; Washington and Montgomery counties, Indiana.
1896. *Forbesiocrinus multibrachiatus*. Miller and Gurley, Bul. No. 8, Ill. State Mus. Nat. Hist., p. 55, pl. 4, fig. 1.
Knob Sandstone: Hardin County, Kentucky; Washington and Montgomery counties, Indiana.

Taxocrinus multibrachiatus var. colletti White.

1881. *Taxocrinus multibrachiatus var. colletti*. White, 2d Ann. Rep. Dep. Stat. and Geol. Ind., p. 506, pl. 7, fig. 3.
Keokuk Group: Crawfordsville, Indiana.

Taxocrinus ramulosus Hall.

1860. *Forbesiocrinus ramulosus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 67.
Burlington L. S.: Burlington, Iowa.

Taxocrinus semiovatus Meek and Worthen.

1860. *Forbesiocrinus ? semiovatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 389.
St. Louis L. S.: Hardin County, Illinois.
1866. *Taxocrinus semiovatus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 272, pl. 20, figs. 4a, b.
St. Louis Group: Hardin County, Illinois.

Taxocrinus shumardianus Hall.

1858. *Forbesiocrinus shumardianus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 671, pl. 17, fig. 1.
St. Louis L. S.: St. Louis, Missouri.
1894. *Taxocrinus shumardianus*. Keyes, Mo. Geol. Surv., vol. 4, p. 224.
St. Louis L. S.: St. Louis, Missouri.

Taxocrinus splendens Miller and Gurley.

1896. *Taxocrinus splendens*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 61, pl. 5, figs. 3, 4.
Keokuk Group: Crawfordsville, Indiana.

Taxocrinus subovatus Miller and Gurley.

1890. *Taxocrinus subovatus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 347, pl. 5, fig. 3.
Keokuk Group: Near Canton, Indiana.

Taxocrinus tardus Hall.

1864. *Forbesiocrinus lobatus var. tardus*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 56.
Waverly Group: Richfield, Ohio.
1875. *Forbesiocrinus tardus*. Hall and Whittfield, Pal. Ohio, vol. 2, p. 170, pl. 12, fig. 2.
Waverly Group: Richfield, Ohio.

Taxocrinus thiemei Hall.

1861. *Forbesiocrinus thiemei*. Hall, Desc. New Spec. Crin., p. 8.
Burlington L. S.
1861. *Forbesiocrinus spiniger*. Hall, Desc. New Spec. Crin., p. 9.
Burlington L. S.
1861. *Forbesiocrinus Thiemei*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 317.
Burlington L. S.: Burlington, Iowa.
1861. *Forbesiocrinus spinifer*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 318.
Burlington L. S.: Burlington, Iowa.

Taxocrinus thiemei Hall—Continued.

1872. *Forbesiocrinus Thiemei*. Hall, Photo. Plates of Crinoids, pl. 7, fig. 4.
 1873. *Taxocrinus Thiemei*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 399, pl. 4, fig. 1.
 Burlington L. S.: Burlington, Iowa.
 1874. *Taxocrinus Thiemei*. Meek, Am. Jour. Sci. (3), vol. 7, p. 191.
 1894. *Taxocrinus thiemi*. Keyes, Mo. Geol. Surv., vol. 4, p. 223, pl. 30, fig. 5.
 Lower Burlington L. S.: Hannibal, Missouri.

Taxocrinus ungula Miller and Gurley.

1896. *Taxocrinus ungula*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 59, pl. 5, figs. 1, 2.
 Keokuk Group: Crawfordsville, Indiana.

Taxocrinus wetherbyi Miller and Gurley.

1896. *Taxocrinus wetherbyi*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 41, pl. 4, figs. 3-5.
 Kaskaskia Group: Pulaski County, Kentucky.

Taxocrinus whitfieldi Hall.

1858. *Forbesiocrinus whitfieldi*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 632.
 Keokuk L. S.: Warsaw, Illinois.
 1860. *Forbesiocrinus whitfieldi*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 88.
 Warsaw L. S. (not Keokuk as recorded in 1858).
 1873. *Onychocrinus Whitfieldi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 552, pl. 20, fig. 3.
 Chester Group: Opposite Kaskaskia in Randolph County, Illinois.

TELEIOCRINUS Wachsmuth and Springer, 1881.**Teleiocrinus adolescens** Wachsmuth and Springer.

1897. *Teleiocrinus adolescens*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 635, pl. 59, fig. 4.
 Lower Burlington L. S.: Burlington, Iowa.

Teleiocrinus agilops. See *Teleiocrinus umbrosus*.**Teleiocrinus althaea** Hall.

- *1861. *Actinocrinus (Calathocrinus) althaea*. Hall, Desc. New Spec. Crin., p. 13.
 Burlington L. S.
 1872. *Actinocrinus (Strotocrinus) Althaea*. Hall, Photo. Plates of Crin., pl. 4, fig. 13.
 1897. *Teleiocrinus althaea*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 632, pl. 60, fig. 4; pl. 63, fig. 9.
 Upper Burlington L. S.: Burlington, Iowa.

Teleiocrinus liratus Hall.

1860. *Actinocrinus liratus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 1.
 Burlington L. S.: Burlington, Iowa.
 1860. *Actinocrinus subumbrosus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 3.
 Burlington L. S.: Burlington, Iowa.
 1872. *Actinocrinus (Strotocrinus) liratus*. Hall, Photo. Plates of Crin., pl. 4, fig. 3.
 1873. *Strotocrinus liratus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 355, pl. 7, fig. 2.
 Burlington L. S.: Burlington, Iowa.
 1894. *Teleiocrinus liratus*. Keyes, Mo. Geol. Surv., vol. 4, p. 191, pl. 24, fig. 8.
 Upper Burlington L. S.: Ash Grove, Missouri.
 1897. *Teleiocrinus liratus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 633, pl. 60, fig. 3.
 Upper Burlington L. S.: Burlington, Iowa.

Teleocrinus rudis Hall.

1860. *Actinocrinus rudis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 33.
Burlington L. S.: Burlington, Iowa.
- *1861. *Actinocrinus insculptus*. Hall, Desc. New Spec. Crin., p. 12.
Burlington L. S.
1861. *Actinocrinus erodus*. Hall, Desc. New Spec. Crin., p. 12.
Burlington L. S.
1861. *Actinocrinus clivus*. Hall, Jour. Bost. Nat. Hist., vol. 7, p. 274.
Burlington L. S.: Burlington, Iowa.
1897. *Teleocrinus rudis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 630,
pl. 59, figs. 1-3.
Upper Burlington L. S.: Burlington, Iowa.

Teleocrinus tenuiradiatus Hall.

1861. *Actinocrinus tenuiradiatus*. Hall, Desc. New Spec. Crin., p. 12.
Burlington L. S.
1897. *Teleocrinus tenuiradiatus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 634, pl. 59, figs. 5, 6.
Upper Burlington L. S.: Burlington, Iowa.

Teleocrinus umbrosus Hall.

1858. *Actinocrinus umbrosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 590, pl. 9, figs. 3a, b.
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus agilops*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 5.
Burlington L. S.: Quincy, Illinois.
1869. *Actinocrinites delicatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 156.
Upper Burlington L. S.: Burlington, Iowa.
1873. *Actinocrinites delicatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 343.
pl. 8, fig. 2.
Upper Burlington L. S.: Burlington, Iowa.
1873. *Strotocrinus umbrosus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 360,
pl. 8, fig. 5.
Burlington L. S.: Burlington, Iowa.
1874. *Actinocrinites delicatus*. Meek, Am. Jour. Sci. (3), vol. 7, p. 192.
1893. *Teleocrinus agilops*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 20, pl.
2, figs. 27, 28.
Burlington L. S.: Quincy, Illinois.
1894. *Teleocrinus umbrosus*. Keyes, Mo. Geol. Surv., vol. 4, p. 190.
Upper Burlington L. S.: Ashgrove, Missouri.
1897. *Teleocrinus umbrosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 628,
pl. 59, fig. 7; pl. 60, figs. 2a-d.
Upper Burlington L. S.: Burlington, Iowa; Quincy, Illinois.

TELLINOMYA Hall, 1847.**Tellinomya protensa Hall.**

1852. *Tellinomya protensa*. Hall, Stansb. Exped. Gt. Salt Lake, p. 412, pl. 2, fig. 3.
Carboniferous: Near Le Bonte.

TEMNOCHEILUS McCoy, 1844.**Temnocheilus conchiferous Hyatt.**

1891. *Temnocheilus Conchiferous*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 329,
figs. 23, 24.
Carboniferous: Texas.
1893. *Temnocheilus conchiferus*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 391.
Carboniferous: Military Crossing, Baylor County, Texas.

Temnocheilus coxanus Meek and Worthen.

1870. *Nautilus (Temnocheilus) Coxanus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 50.
St. Louis L. S.: Near New Providence, Indiana.
1873. *Nautilus (Temnocheilus) Coxanus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 543, pl. 23, fig. 1.
St. Louis Group: Waterloo, Illinois; Greencastle, Indiana.
1891. *Temnocheilus coxanus*. Foord, Cat. Foss. Ceph. Brit. Mus., vol. 2, p. 153.
St. Louis L. S.: Putnam County, Indiana.
1893. *Temnocheilus coxanus*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 392.
Carboniferous: Ballinger, Texas.

Temnocheilus crassus Hyatt.

1891. *Temnocheilus crassus*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 333, figs. 27-29.
Carboniferous: Near Oswego, Kansas.
1893. *Temnocheilus crassus*. Hay, Trans. Kansas Acad. Sci., vol. 13, p. 38, figs. 3-5.
Carboniferous: Oswego, Kansas.

Temnocheilus depressus Hyatt.

1891. *Temnocheilus depressus*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 331, figs. 25, 26.
Carboniferous: Near Oswego, Kansas.

Temnocheilus forbesianus McChesney.

1860. *Nautilus forbesianus*. McChesney, Desc. New Pal. Foss., p. 63.
Coal Measures: Carnahan's Mine, Mercer County, Illinois.
1865. *Nautilus Forbesianus*. McChesney, Ill. New Spec. Foss., pl. 3, figs. 4a-b.
1868. *Nautilus Forbesianus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 50, pl. 3, figs. 4a, b.
Coal Measures: Carnahan's Mine, Mercer County, Illinois.
1884. *Nautilus Forbesianus*. White, 13th Rep. Geol. Surv. Ind., p. 165, pl. 36, figs. 3, 4.
Coal Measures: Newport, Indiana.
1887. *Nautilus forbesianus*. Herrick, Bull. Den. Univ., vol. 2, p. 146, pl. 14, fig. 13.
Coal Measures: Flint Ridge, Ohio.
1891. *Temnocheilus Forbesianus*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 330.
Carboniferous: Texas.
1894. *Nautilus forbesianus*. Keyes, Mo. Geol. Surv., vol. 5, p. 223, pl. 56, figs. 4a, b.
Upper Coal Measures: Kansas City, Missouri.

Temnocheilus greenense Miller and Gurley.

1897. *Temnocheilus greenense*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 52, pl. 5, fig. 3.
Kaskaskia Group: Fish Creek, Green County, Indiana.

Temnocheilus latus Meek and Worthen.

1870. *Nautilus (Temnocheilus) latus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 49.
Lower Coal Measures: Carbon Cliff Mines, Rock Island County, Illinois.
1873. *Nautilus (Temnocheilus) latus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 608, pl. 30, fig. 2.
Coal Measures: Carbon Cliff, Rock Island County, Illinois.
1891. *Temnocheilus latus*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 330.
Carboniferous: Near Oswego, Kansas.
1891. *Temnocheilus latus*. Foord, Cat. Foss. Ceph. Brit. Mus., vol. 2, p. 151.
Coal Measures: Illinois.

Temnocheilus scottense Worthen. See Koninckioceras scottense.

***Temnocheilus winslowi* Meek and Worthen.**

1870. *Nautilus (Temnochilus) Winslowi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 50.
Lower Coal Measures: Danville, Illinois.
1873. *Nautilus (Temnocheilus) Winslowi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 609, pl. 32, fig. 2.
Coal Measures: Danville, Ill.
1884. *Nautilus Winslowi*. White, 13th Rep. Geol. Surv. Ind., p. 165, pl. 36, figs. 1, 2.
Coal Measures: Indiana (?).
1888. *Nautilus winslowi*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 242.
Lower Coal Measures: Des Moines, Iowa.
1891. *Nautilus (Temnocheilus) winslowi*. White, Bull. U. S. Geol. Surv., No. 77, p. 23, pl. 3, figs. 1-5.
Permian: Military Crossing of the Big Wichita, Baylor County, Texas.
1894. *Nautilus winslowi*. Keyes, Mo. Geol. Surv., vol. 5, p. 223, pl. 56, fig. 2.
Upper Coal Measures: Lexington, Missouri.

TEREBRATULA Llhwyd, 1699.

Terebratula arcuata. See *Dielasma shumardanum*.

Terebratula argentea. See *Seminula argentea*.

***Terebratula bisacula* McChesney.**

1860. *Terebratula bisacula*. McChesney, Desc. New Pal. Foss., p. 82.
Kaskaskia Group: Chester and Golconda, Illinois.

Terebratula bovidens. See *Dielasma bovidens*.

***Terebratula brevilobata* Swallow.**

1863. *Terebratula brevilobata*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 84.
Archimedes L. S.: Ste. Genevieve County, Missouri.

Terebratula burlingtonensis. See *Dielasma burlingtonensis*.

Terebratula elongata. See *Dielasma bovidens*.

Terebratula formosa. See *Dielasma formosa*.

Terebratula geniculosa. See *Dielasma bovidens*.

Terebratula gorbyi. See *Dielasma gorbyi*.

Terebratula gracilis. See *Terebratula swallowana*.

Terebratula hastata. See *Dielasma hastata* and *Dielasma bovidens*.

Terebratula inconstans. See *Cryptonella inconstans*.

***Terebratula inornata* McChesney.**

1860. *Terebratula inornata*. McChesney, Desc. New Pal. Foss., p. 48.
Coal Measure L. S.: Sangamon County, Illinois.
Also Carboniferous L. S. as low down as Keokuk division.

***Terebratula lapillus* Morton.**

1836. *Terebratula lapillus*. Morton, Am. Jour. Sci. (1), vol. 29, p. 153, pl. 26, fig. 36.
Coal Measures: Ohio Valley.

Terebratula marcyi. See *Eumetria marcyi*.

Terebratula millepunctata. See *Dielasma bovidens*.

Terebratula mormoni. See *Hustedia mormoni*.

***Terebratula nuciformis* Morton.**

1836. *Terebratula nuciformis*. Morton, Am. Jour. Sci. (1), vol. 28, p. 150, pl. 2, fig. 5.
Coal Measures: Ohio Valley.

Terebratula occidentalis. See *Dielasma occidentalis*.

Terebratula parva. See *Seminula parva*.

Terebratula perinflata Shumard.

1859. *Terebratula perinflata.* Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 392.
White Permian L. S.: Guadalupe Mountains.

Terebratula plano-sulcata. See *Seminula argentea* and *Cleiothyris roissy*.

Terebratula pugnus. See *Pugnax uta*.

Terebratula rockymontana. See *Pugnax rockymontana*.

Terebratula rowleyi. See *Dielasma rowleyi*.

Terebratula roysii. See *Cleiothyris roissy*.

Terebratula sacculus. See *Dielasma sacculus*.

Terebratula serpentaria. See *Eumetria marcyi*.

Terebratula subretziaforma McChesney.

1861. *Terebratula subretziaforma.* McChesney, Desc. New Foss., p. 82.
Kaskaskia: Fountain Bluff, Illinois.

Terebratula subtilita. See *Seminula argentea*.

Terebratula swallovana Miller.

1863. *Terebratula gracilis.* Swallow, Trans. St. Louis Acad., vol. 2, p. 83.
Archimedes L. S.: St. Mary's, Missouri; Chester, Illinois.

1883. *Terebratula swallovana.* Miller, Am. Pal. Foss., 2d ed., p. 299.

Terebratula trinuclea. *Seminula trinuclea*.

Terebratula turgida. See *Dielasma turgida*.

Terebratula uta. See *Pugnax uta*.

Terebratula utah Hall and Whitfield.

1877. *Terebratula Utah.* Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 258,
pl. 4, fig. 18.
Lower Carboniferous L. S. (Waverly?): Cottonwood Divide, 800 feet east
of Reed and Benson's mine, Wasatch range, Utah.

(TERMES Linnaeus 1748.)

Termes contusus Scudder. See *Didymophleps contusa*.

THAMNISCUS King, 1849.

Thamniscus divaricans Ulrich.

1890. *Thamniscus divaricans.* Ulrich, Geol. Surv. Ill., vol. 8, p. 608, pl. 62,
figs. 6-6c.
Keokuk Group: King's Mountain, Kentucky.

Thamniscus furcillatus Ulrich.

1890. *Thamniscus furcillatus.* Ulrich, Geol. Surv. Ill., vol. 8, p. 609, pl. 62,
figs. 9-9b.
Chester Group: Chester and Kaskaskia, Illinois; Sloan's Valley and Litch-
field, Kentucky.

1894. *Thamniscus furcillatus.* Keyes, Mo. Geol. Surv., vol. 5, p. 31, pl. 33, fig. 6.
Kaskaskia L. S.: Ste. Genevieve, Missouri.

Thamniscus octonarius Ulrich.

1890. *Thamniscus octonarius.* Ulrich, Geol. Surv. Ill., vol. 8, p. 611, pl. 62,
figs. 7-7b.
Upper Coal Measures: Greenwood County, Kansas.

Thamniscus ramulosus Ulrich.

1890. *Thamniscus ramulosus*. Ulrich, Geol. Surv. Ill., vol. 8, p. 610, pl. 62, figs. 4-4b.

Chester Group: Sloan's Valley, Kentucky; Chester, Illinois.

Thamniscus ramulosus var. sevilensis Ulrich.

1890. *Thamniscus ramulosus* var. *sevilensis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 610, pl. 55, fig. 6; pl. 62, figs. 5, 5a.

Lower Coal Measures: Seville, Illinois.

Thamniscus sculptilis Ulrich.

1890. *Thamniscus sculptilis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 608, pl. 62, figs. 8-8b.

Keokuk Group: King's Mountain, Kentucky.

* **THAMNODICTYA** Hall, 1884.**Thamnodictya newberryi** Hall.

1863. *Dictyophyton newberryi*. Hall, 16th Rep. N. Y. State Cab. Nat. Hist., p. 87.

Waverly Group: Cuyahoga Falls and Richfield, Ohio.

1884. *Thamnodictya Newberryi*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 477, pl. 18, figs. 10, 11.

Waverly S. S.: Cuyahoga Falls and Richfield, Ohio.

THRINOCERAS Hyatt, 1893.**Thrinoceras depressum** Hyatt.

1893. *Thrinoceras depressum*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 430, figs. 9, 10.

Carboniferous: Bullitt County, Kentucky.

Thrinoceras kentuckiense Hyatt.

1893. *Thrinoceras kentuckiense*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 432, figs. 11-15.

Carboniferous: Franklin County, Kentucky.

TITANOCERAS Hyatt, 1883.**Titanoceras ponderosum** Meek.

1872. *Nautilus ponderosus*. Meek, U. S. Geol. Surv. Nebr., p. 236, pl. 3, figs. 7a, b.

Upper Coal Measures: Plattsmouth, Nebraska; Lasalle, Illinois; Iowa.

1883. *Titanoceras ponderosum*. Hyatt, Proc. Bost. Soc. Nat. Hist., vol. 22, p. 290.

1894. *Nautilus ponderosus*. Keyes, Mo. Geol. Surv., vol. 5, p. 222.

Upper Coal Measures: Kansas City, Missouri.

1896. *Nautilus ponderosus*. Keyes, Proc. Iowa Acad. Sci., vol. 3, p. 76.

Upper Coal Measures: Kansas City, Missouri.

TITANOPHAMA Brongniart.**Titanophasma jucunda** Scudder.

1884. *Titanophasma jucunda*. Scudder, Proc. Am. Acad. Arts and Sci., vol. 20, p. 169.

Carboniferous: Near Pittston, Pennsylvania.

TORYNIFER Hall, 1894.**Torynifer criticus** Hall and Clarke.

1895. *Torynifer criticus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 84, figs. 34, 35.

St. Louis Group: La Rue, Kentucky.

1897. *Torynifer criticus*. Hall, 14th Rep. N. Y. State Geol., p. 359, pl. 9, fig. 1.

St. Louis Group: La Rue, Kentucky.

TRACHYDOMIA Meek and Worthen, 1866.

Trachydomia nodosum. Meek and Worthen.

1860. *Naticopsis nodosus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 463.

Lower Coal Measures: St. Clair County, Illinois.

1866. *Naticopsis nodosa*. Meek and Worthen, Geol. Surv. Ill., vol. 2, 366, pl. 31, figs. 2a, b.

Lower Coal Measures: St. Clair County, Illinois.

1888. *Naticopsis nodosa*. Herrick, Bull. Den. Univ., vol. 4, pl. 11, fig. 9.
Coal Measures: Fultonham, Ohio.

1894. *Trachydomia nodosum*. Keyes, Mo. Geol. Surv., vol. 5, p. 201.

Upper Coal Measures: Kansas City, Missouri.

Trachydomia nodosum var. hollidayi Meek and Worthen.

1860. *Naticopsis Hollidayi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 463.

Coal Measures: Hodge's Creek, Macoupin County, Illinois.

1866. *Naticopsis nodosa* var. *Hollidayi*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 367, pl. 31, figs. 3a, b.

Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.

Trachydomia nodulosa Worthen.

1884. *Trachydomia nodulosa*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 8.

Coal Measures: Peoria County, Illinois.

1891. *Trachydomia nodulosa*. Worthen, Geol. Surv. Ill., vol. 8, p. 146, pl. 23, figs. 11, 11a.

Coal Measures: Peoria County, Illinois.

Trachydomia wheeleri Swallow.

1860. *Littorina Wheeleri*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 658.

Coal Measures: Monroe County, Missouri.

1873. *Naticopsis Wheeleri*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 595, pl. 28, fig. 3.

Upper and Lower Coal Measures: Springfield and Alton, Illinois.

1881. *Naticopsis wheeleri* var. *White*, U. S. Geog. Surv. W. 100 Merid., vol. 3, Supp., Appendix, p. xxxiii, pl. 4, figs. 6a, b.

Carboniferous: Near Taos, New Mexico.

1894. *Naticopsis Wheeleri*. White, 13th Rep. Geol. Surv. Ind., p. 162, pl. 32, figs. 13, 14.

Upper Coal Measures: Western part of Vigo County, Indiana.

1889. *Trachydomia wheeleri*. Keyes, Am. Geol., vol. 4, p. 195, fig. 2.

1891. *Trachydomia wheeleri*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 257.

Lower Coal Measures: Des Moines, Iowa.

1894. *Trachydomia wheeleri*. Keyes, Mo. Geol. Surv., vol. 5, p. 200, pl. 55, fig. 8.

Coal Measures: Clinton and Kansas City, Missouri; Peoria, Springfield and Alton, Illinois; Des Moines, Iowa.

TRACHYPORA Edwards and Haime, 1851.

Trachypora austini Worthen.

1890. *Trachypora austini*. Worthen, Geol. Surv. Ill., vol. 8, p. 81, pl. 11, figs. 1-1d.

Coal Measures: Labette County, Kansas.

TREMATASTER Worthen and Miller, 1883.

Tremataster difficilis Worthen and Miller.

1883. *Tremataster difficilis*. Worthen and Miller, Geol. Surv. Ill., vol. 7, p. 330, pl. 31, figs. 3a, b.

Chester L. S.: Prairie du Long Creek, Monroe County, Illinois.

TREMATOCERAS Hyatt, 1883.

Trematoceras altidorsalis Winchell.

1862. *Nautilus (Trematodiscus) altidorsalis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 429.

Marshall Group: Marshall, Michigan.

Trematoceras discoidalis Winchell.

1862. *Nautilus (Trematodiscus) discoidalis*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 360.

Marshall S. S.: Marshall and Battle Creek, Michigan.

1865. *Nautilus (Trematodiscus) discoidalis?* Winchell, Proc. Acad. Nat. Sci. Phil., p. 132.

Marshall Group: Rockford, Indiana.

Trematoceras konincki Wetherby.

1881. *Trematodiscus konincki*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 79, pl. 2, fig. 4.

Lower Waverly Group: King's Mountain Tunnel, on Cincinnati Southern Railroad, Kentucky.

Trematoceras meekianus Winchell.

1862. *Nautilus (Trematodiscus) Meekianus*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 360.

Marshall S. S.: Marshall, Michigan.

Trematoceras ohioense Miller and Faber.

1892. *Trematoceras ohioense*. Miller and Faber, Jour. Cinn. Soc. Nat. Hist., vol. 14, p. 168, pl. 6, figs. 4, 5.

Upper Waverly Group: Near Sciotoville, Ohio.

Trematoceras planidorsalis Winchell.

1862. *Nautilus (Trematodiscus) planidorsalis*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 358.

Marshall S. S.: Marshall, Michigan.

Trematoceras rockymontanus Miller.

1881. *Trematodiscus rockymontanus*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 312, pl. 7, fig. 6.

Subcarboniferous: Lake Valley Mining District, New Mexico.

Trematoceras striatulus Winchell.

1862. *Nautilus (Trematodiscus) striatulus*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 359.

Marshall S. S.: Marshall, Michigan.

Trematoceras strigatus Winchell.

1862. *Nautilus (Trematodiscus) strigatus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 428.

Marshall Group: Marshall, Michigan.

Trematoceras sulcatus Meek and Worthen.

1866. *Nautilus (Trematodiscus) sulcatus?* Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 274.

Chester Group: Ste. Genevieve County, Missouri.

(TREMATOCRINUS Hall, 1860.)

Trematocrinus fiscellus. See *Gilbertsocrinus fiscellus*.

Trematocrinus papillatus. See *Gilbertsocrinus papillatus*.

Trematocrinus reticulatus. See *Gilbertsocrinus reticulatus*.

Trematocrinus robustus. See *Gilbertsocrinus robustus*.

Trematocrinus tuberculosus. See *Gilbertsocrinus tuberculosus*.

Trematocrinus typus. See *Gilbertsocrinus typus*.

(TREMATODISCOUS Meek and Worthen, 1861.)

Trematodiscus konincki Wetherby. See *Trematoceras konincki*.

Trematodiscus rockymontanus Miller. See *Trematoceras rockymontanus*.

TREMATOPORA Hall, 1852.

Trematopora? americana Miller.

1881. *Trematopora americana*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 312, pl. 7, figs 5, 5a.

Subcarboniferous: Lake Valley Mining District, New Mexico.

Trematopora? fragilis Winchell.

1863. *Trematopora? fragilis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 3.
Base of Burlington L. S.: Burlington, Iowa.

Trematopora? vesiculosa Winchell.

1863. *Trematopora? vesiculosa*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 3.
Base of Burlington L. S.: Burlington, Iowa.

(?) Waverly S. S.: Ohio.

1865. *Trematopora? vesiculosa*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 112.
Marshall Group: Alan's Quarry, Hillsdale, Michigan.

1870. *Trematopora? vesiculosa*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 247.
Waverly Group: Sciotoville, Ohio.

TRIBOLOCERAS Hyatt, 1883.

Triboloceras digonum Meek and Worthen.

1860. *Nautilus (Discus) digonus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 470.

Goniatite Beds: Rockford, Indiana.

1866. *Nautilus digonus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 163, pl. 14, figs. 9a-d.

Goniatite Bed: Rockford, Indiana.

Kinderhook Group: Jersey County, Illinois; Central Missouri.

1893. *Triboloceras (Tremat.) digonum*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 418.

1894. *Nautilus digonus*. Keyes, Mo. Geol. Surv., vol. 5, p. 222.

Kinderhook Group: Callaway County, Missouri.

TRICEOCRINUS Meek and Worthen, 1868.

Tricœlocrinus meekianus Etheridge and Carpenter.

1886. *Tricœlocrinus Meekianus*. Etheridge and Carpenter, Cat. Blast., p. 208, pl. 16, figs. 17, 18.

St. Louis Group: Spegen Hill, Indiana.

Tricœlocrinus obliquatus Roemer.

- *1851. *Pentatremites obliquatus*. Roemer, Archiv. fur Naturgesch., Jahrg. 17, p. 367, taf. 6, figs. 11a, b.

1869. *Pentremites obliquatus?* Safford, Geol. of Tenn., p. 346, pl. 6, figs. 2a-d.
St. Louis Group: Clarksville, Tennessee.

Tricelocrinus obliquatus Roemer—Continued.

1875. *Pentremites (Tricelocrinus) obliquatus*. Meek and Worthen, Geol. Surv. Ill., vol. 6, p. 521, pl. 31, fig. 4.
Warsaw beds: Monroe County, Illinois, and not in Archimedes beds of Randolph County, as cited by Roemer.
1886. *Tricelocrinus obliquatus*. Etheridge and Carpenter, Cat. Blast., p. 206, pl. 18, figs. 10-13.
St. Louis L. S.: Washington, Indiana.

Tricelocrinus woodmani Meek and Worthen.

1868. *Pentremites (Troostocrinus) Woodmani*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 356.
Keokuk Group?: Salem, Indiana.
1873. *Pentremites (Troostocrinus?) Woodmani*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 506, pl. 16, fig. 4.
Keokuk Group?: Salem, Indiana.
1874. *Pentremites (Troostocrinus?) Woodmani*. Meek, Am. Jour. Sci. (3), vol. 7, p. 375.

TROCHITA Schumacher, 1817.**Trochita? carbonaria Meek and Worthen.**

1866. *Trochita? carbonaria*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 270.
Chester Group: Ste. Genevieve County, Missouri.

TROCHOPHYLLUM Milne-Edwards and Haime, 1851.**Trochophyllum verneuianum Milne-Edwards and Haime.**

1851. *Trochophyllum verneuianum*. Milne-Edwards and Haime, Monog. des Polyp. Foss., p. 357, pl. 5, figs. 6-6a.
Carboniferous: Hills 7 miles from Louisville, Kentucky.
1860. *Trochophyllum Verneuianum*. Milne-Edwards, Hist. Nat. Corr., vol. 3, p. 359.
Carboniferous: Kentucky.

(TROCHUS Adanson, 1757.)**Trochus missouriensis. See Pleurotomaria missouriensis.****TROOSTOCRINUS Shumard, 1865.****Troostocrinus grosvenori Shumard.**

1858. *Pentremites Grosvenori*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 240, pl. 9, figs. 2a-d.
Archimedes L. S.: Spargen Hill, Indiana.
1860. *Pentremites grosvenori*. Hall, Supp., vol. 1, pt. 2, Geol. Rep. Ia., pl. 1, fig. 3a, b.

Troostocrinus nitidulus. See Metablastus nitidulus.**Troostocrinus wachsmuthi. See Metablastus gurleyi.****TROPIDOCARIS Beecher, 1884.****Tropidocaris alternata Beecher.**

1884. *Tropidocaris alternata*. Beecher, Rep. PPP, 2d Geol. Surv. Penn., p. 19, pl. 2, figs. 7, 8.
Waverly Group: Warren, Pennsylvania.
1888. *Tropidocaris alternata*. Hall and Clarke, Pal. N. Y., vol. 7, p. 186, pl. 31, figs. 14, 15.
Waverly Group: Warren, Pennsylvania.

TURBO Klein, 1753.***Turbo guadalupensis* Shumard.**

1859. *Turbo Guadalupensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 398.
Dark Permian L. S.: Guadalupe Mountains.

***Turbo helycinus* Shumard.**

1859. *Turbo helycinus* (?) Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 398.
White Permian L. S.: Guadalupe Mountains.

***Turbo insectus* Conrad.**

1835. *Turbo insectus*. Conrad, Trans. Geol. Soc. Penn., vol. 1, pt. 2, p. 267, pl. 12,
fig. 4.

***Turpo obesus* Shumard.**

1858. *Turbo obesus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 202.
Upper Coal Measures: Iowa Point, Nebraska.

Turbo tabulatus*. See *Pleurotomaria tabulata*.**Turbo texana* Shumard.**

1859. *Turbo Texanus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 400.
Coal Measures: 4 miles west of Sierra Hueco, El Paso County, Texas.

***Turbo* (undetermined species).**

1868. *Turbo* (two species). Dawson, Acad. Geol., p. 309.
Carboniferous L. S.: Pugwash and Windsor, Nova Scotia.

(TURBONILLA Leach, 1826.)***Turbonilla swalloviana*. See *Aclisina swalloviana*.****(TURRITELLA Lamark, 1801.)*****Turritella stevensana*. See *Aclisina stevensana*.****ULOCRINUS Miller and Gurley, 1890.*****Ulocrinus blairi* Miller and Gurley.**

1894. *Ulocrinus blairi*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist.,
p. 57, pl. 5, figs. 16-18.
Upper Coal Measures: Weston, Missouri.

***Ulocrinus buttsi* Miller and Gurley.**

1890. *Ulocrinus buttsi*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13, p.
7, pl. 1, figs. 5, 6.
Upper Coal Measures: Kansas City, Missouri.
1890. *Ulocrinus buttsi*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 331, pl. 1,
figs. 5, 6.
Upper Coal Measures: Kansas City, Missouri.
1890. *Ulocrinus buttsi*. Anon., The Naturalist (Kansas City), vol. 4, No. 10, fig.
Coal Measures: Kansas City, Missouri.
1894. *Cromyocrinus buttsi*. Keyes, Mo. Geol. Surv., vol. 4, p. 216.
Upper Coal Measures: Kansas City, Missouri.

***Ulocrinus kansasensis* Miller and Gurley.**

1890. *Ulocrinus kansasensis*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol.
13, p. 8, pl. 1, figs. 7-10.
Upper Coal Measures: Kansas City, Missouri.
1890. *Ulocrinus kansasensis*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 332,
pl. 1, figs. 7-10.
Upper Coal Measures: Kansas City, Missouri.
1894. *Cromyocrinus kansasensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 216, pl. 24, fig. 7.
Upper Coal Measures: Kansas City, Missouri.

Ulocrinus occidentalis Miller and Gurley.

1894. *Ulocrinus occidentalis*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 58, pl. 6, figs. 6-8.

Upper Coal Measures: Gilpin, Missouri.

Ulocrinus (species undetermined).

1890. *Ulocrinus* sp. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 370, pl. 10, figs. 9-13.

ULRICHIA Jones, 1890.**Ulrichia ? confuens** Ulrich.

1891. *Ulrichia (?) confuens*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 203, pl. 12, figs. 11a, b.

Chester Group: Near Grayson Springs, Kentucky.

Ulrichia emarginata Ulrich.

1891. *Ulrichia emarginata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 203, pl. 12, figs. 10a-c.

Chester Group: Near Grayson Springs, Kentucky.

(UNIO Philippon, 1788.)**(Unio petrosus** Morton.)

1836. *Unio petrosus*. Morton, Am. Jour. Sci. (1), vol. 29, p. 149, pl. 1, fig. 17.

Coal Measures: Ohio Valley.

(Unio saxulum Morton.)

1836. *Unio saxulum*. Morton, Am. Jour. Sci. (1), vol. 29, p. 149, pl. 1, fig. 20.

Coal Measures: Ohio Valley.

(Unio terrenus Morton.)

1836. *Unio terrenus*. Morton, Am. Jour. Sci. (1), vol. 29, p. 149, pl. 1, fig. 19.

Coal Measures: Ohio Valley.

(Unio tumulatus Morton.)

1836. *Unio tumulatus*. Morton, Am. Jour. Sci. (1), vol. 29, p. 149, pl. 1, figs. 18, 21.

Coal Measures: Ohio Valley.

(UPHANTÆNIA Vanuxem, 1842.)**Uphantænia dawsoni** Whitfield. See *Physospongia dawsoni*.**VALVULINA** D'Orbigny, 1826.**Valvulina bulloides** Brady.

1876. *Valvulina bulloides*. Brady, Monog. Carb. and Perm. Foram., p. 89, pl. 4, figs. 12-15.

Upper Coal Measures: Southern Iowa.

Valvulina decurrens Brady.

1876. *Valvulina decurrens*. Brady, Monog. Carb. and Perm. Foram., p. 87, pl. 3, figs. 17, 18.

Upper Coal Measures: Southern Iowa and mouth of Platte River.

Valvulina palæotrochus Ehrenberg.

1876. *Valvulina palæotrochus*. Brady, Monog. Carb. and Perm. Foram., p. 83, pl. 4, figs. 1-4.

Upper Coal Measures: Southern Iowa, and mouth of Platte River.

Valvulina plicata Brady.

1876. *Valvulina plicata*. Brady, Monog. Carb. and Perm. Foram., p. 88, pl. 4, figs. 10, 11.

Upper Coal Measures: Southern Iowa.

Valvulina rudis Brady.

1876. *Valvulina rudis*. Brady, Monog. Carb. and Perm. Foram., p. 90, pl. 3, figs. 19, 20.

Upper Coal Measures: Southern Iowa.

VASOCRINUS Lyon, 1857.**Vasocrinus hexadactylus** Lyon and Casseday.

1860. *Cyathocrinus hexadactylus*. Lyon and Casseday, Am. Jour. Sci. (2), vol. 29, p. 74.

Subcarboniferous: Clear Creek, Hardin County, Kentucky; Montgomery County, Indiana.

1861. *Cyathocrinus lyoni*. Hall, Desc. New Spec. Crin., p. 5.
Keokuk L. S.

1861. *Cyathocrinus Lyoni*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 298.
Keokuk L. S.: Crawfordsville, Indiana.

1872. *Cyathocrinus Lyoni*. Hall, Photo. Plates of Crinoids, pl. 5, figs. 12, 13.

Vasocrinus macropleurus Hall.

1861. *Cyathocrinus macropleurus*. Hall, Desc. New Spec. Crin., p. 5.
Burlington L. S.

1861. *Cyathocrinus macropleurus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 295.
Burlington L. S.: Burlington, Iowa.

WAAGENOCCERAS Gemmellaro, 1888.**Waagenoceras cumminsi** White.

1889. *Ptychites cumminsi*. White, Am. Nat., vol. 23, p. 117, pl. 1, figs. 4-8.
Permian: Baylor County, Texas.

1891. *Waagenoceras cumminsi*. White, Bull. U. S. Geol. Surv., No. 77, p. 20,
pl. 1, figs. 4-8.

Permian: Military Crossing of the Big Wichita, Baylor County, Texas.

(WALDHEIMA King, 1849.)

Waldheimia compacta. See *Cryptacanthia compacta*.

WOODOCRINUS De Koninck, 1854.**Woodocrinus æqualis** Hall.

1861. *Scaphiocrinus æqualis*. Hall, Desc. New Spec. Crin., p. 8.
Keokuk L. S.

1861. *Scaphiocrinus æqualis*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 316.
Keokuk L. S.: Crawfordsville, Indiana.

1872. *Scaphiocrinus æqualis*. Hall, Photo Plates of Crin., pl. 5, fig. 10.

1873. *Scaphiocrinus æqualis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 494,
pl. 15, fig. 6.

Keokuk Group: Crawfordsville, Indiana.

Woodocrinus arboreus Worthen.

1873. *Zeacrinus arboreus*. Worthen, Geol. Surv. Ill., vol. 5, p. 534, pl. 20, fig. 5.
St. Louis L. S.†: Near Huntsville, Alabama.

Woodocrinus asper Meek and Worthen.

1869. *Zeacrinus asper*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 150.
Upper Burlington L. S.: Burlington, Iowa.

1873. *Zeacrinus asper*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 430, pl. 1,
fig. 7.

Burlington L. S.: Burlington, Iowa.

Woodocrinus asperatus Worthen.

1882. *Poteriocrinus asperatus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 12.
Upper part of geodiferous shales of Keokuk Group: 1 mile below Keokuk, Iowa.
1883. *Poteriocrinus asperatus*. Worthen, Geol. Surv. Ill., vol. 7, p. 280, pl. 28, fig. 2.
Keokuk Group (upper part of geode bed): 1 mile below Keokuk, Iowa.

Woodocrinus bursæformis White.

1862. *Poteriocrinus bursæformis*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 10.
Lower Burlington L. S.: Burlington, Iowa.

Woodocrinus claytonensis Worthen.

1882. *Poteriocrinus claytonensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 18.
Warsaw Beds: Near Clayton, Adams County, Illinois.
1883. *Poteriocrinus Claytonensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 288, pl. 30, fig. 6.
Warsaw Beds: Near Clayton, Adams County, Illinois.

Woodocrinus concinnus Meek and Worthen.

1870. *Poteriocrinus (Zeacrinus?) concinnus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 26.
Keokuk Group: Crawfordsville, Indiana.
1873. *Poteriocrinites (Zeacrinus?) concinnus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 490, pl. 14, fig. 3.
Keokuk Group: Crawfordsville, Indiana.

Woodocrinus coxanus Worthen.

1882. *Zeacrinus coxanus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 27.
Upper Keokuk L. S.: Hamilton, Illinois.
1883. *Zeacrinus Coxanus*. Worthen, Geol. Surv. Ill., vol. 7, p. 302, pl. 28, fig. 1.
Keokuk L. S.: Hamilton, Illinois.

Woodocrinus elegans Hall.

1858. *Zeacrinus elegans*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 547, pl. 9, figs. 1, 2.
Burlington L. S.: Burlington, Iowa.
1894. *Woodocrinus elegans*. Keyes, Mo. Geol. Surv., vol. 4, p. 214, pl. 26, fig. 5.
Lower Burlington L. S.: Louisiana, Missouri.

Woodocrinus liliiformis Meek and Worthen.

1861. *Poteriocrinus carinatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 139.
Burlington L. S.: Burlington, Iowa.
1868. *Poteriocrinus carinatus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 486, pl. 17, fig. 1.
Burlington Group: Burlington, Iowa.

Woodocrinus merope Hall.

1864. *Zeacrinus merope*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 60.
Waverly Group: Richfield, Ohio.
1875. *Zeacrinus merope*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 178, pl. 12, fig. 18.
Waverly Group: Richfield, Ohio.

Woodocrinus paternus Hall.

1864. *Zeacrinus paternus*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 59.
Waverly Group: Richfield, Ohio.
1875. *Zeacrinus paternus*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 177, pl. 12, fig. 17.
Waverly Group: Richfield, Ohio.

Woodocrinus perangulatus White.

1862. *Zeacrinus perangulatus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 11.
Upper Burlington, L. S.: Burlington, Iowa.

Woodocrinus planobrachiatus Meek and Worthen.

1860. *Zeacrinus planobrachiatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 391.
Keokuk L. S.: Monroe County, Illinois.
1866. *Zeacrinus planobrachiatus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 240, pl. 18, fig. 5.
Keokuk L. S.: South line of Monroe County, Illinois.

Woodocrinus pocillum Miller.

1891. *Zeacrinus pocillum*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 28, pl. 4, figs. 1, 2.
Keokuk Group: Boonville, Missouri.
1894. *Woodocrinus pocillum*. Keyes, Mo. Geol. Surv., vol. 4, p. 214.
Keokuk L. S.: Boonville, Missouri.

Woodocrinus ramosus Hall.

1858. *Zeacrinus ramosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 548, pl. 9, fig. 3.
Burlington L. S.: Burlington, Iowa.

Woodocrinus richfieldensis Worthen.

1882. *Poteriocrinus richfieldensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 15.
Shaly S. S. of Kinderhook Group: Near Richfield, Ohio.
1883. *Poteriocrinus Richfieldensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 285, pl. 30, fig. 5.
Kinderhook Group: Near Richfield, Ohio.

Woodocrinus scobina Meek and Worthen.

1869. *Zeacrinus scobina*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 149.
Upper Burlington L. S.: Burlington, Iowa.
1873. *Zeacrinus scobina*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 426, pl. 1, fig. 2.
Burlington L. S.: Burlington, Iowa.

Woodocrinus serratus Meek and Worthen.

1869. *Zeacrinus serratus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 151.
Burlington L. S.: Burlington, Iowa.
1873. *Zeacrinus serratus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 428, pl. 1, fig. 6.
Burlington L. S.: Burlington, Iowa.

Woodocrinus tentaculatus Worthen.

1882. *Poteriocrinus tenuidactylus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 10.
Upper shales of geode bed, Keokuk Group: 1 mile below Keokuk, Iowa.
1883. *Poteriocrinus tentaculatus*. Worthen, Geol. Surv. Ill., vol. 7, p. 277, pl. 28, fig. 11.
Keokuk Group (upper shales of geode bed): 1 mile below Keokuk, Iowa.

Woodocrinus troostanus Meek and Worthen.

1860. *Zeacrinus Troostanus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 390.
Burlington L. S.: Cedar Creek, Warren County, Illinois.
1861. *Zeacrinus scoparius*. Hall, Desc. New Spec. Crin., p. 8.
Burlington L. S.
1861. *Zeacrinus scoparius*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 305.
Burlington L. S.: Burlington, Iowa.

Woodocrinus troostanus Meek and Worthen—Continued.

1862. *Zeacrinus sacculus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 12.
Upper Burlington L. S.: Burlington, Iowa.
1862. *Zeacrinus sacculus* var. *concinus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 13.
Upper Burlington L. S.: Burlington, Iowa.
1866. *Zeacrinus Troostanus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 186, pl. 16, fig. 2.
Burlington L. S.: Burlington, Iowa.
1893. *Zeacrinus scoparius*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 34, pl. 3, figs. 19, 20.
Burlington L. S.: Burlington, Iowa.

WORTHENOPORA Ulrich, 1890.**Worthenopora spatulata** Prout.

1859. *Flustra spatulata*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 446, pl. 17, figs. 2-2c.
Second Archimedes L. S.: Barrett's Station, St. Louis County, Missouri.
1890. *Worthenopora spatulata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 670, pl. 68, figs. 2, 2a.
Warsaw beds: Warsaw, Illinois; Barrett's Station, Missouri.
1894. *Worthenopora spatulata*. Keyes, Mo. Geol. Surv., vol. 5, p. 36.
St. Louis L. S.: Barrett Station, Missouri.

Worthenopora spinosa Ulrich.

1890. *Worthenopora spinosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 669, pl. 68, figs. 1-1g.
Keokuk Group: Warsaw and Nauvoo, Illinois; Keokuk and Bentonsport, Iowa.
Warsaw beds: Warsaw, Illinois.
1894. *Worthenopora spinosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 36.
Keokuk L. S.: Keokuk, Iowa.

XYLOBIUS Dawson, 1860.**Xylobius dawsoni** Scudder.

1868. *Xylobius dawsoni*. Scudder, Dawson's Acad. Geol., p. 496.
Carboniferous: Nova Scotia.
1873. *Xylobius Dawsoni*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 2, p. 235.
Carboniferous: Nova Scotia.
1878. *Xylobius Dawsoni*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 2, p. 561, fig. 4.
Carboniferous: Joggins, Nova Scotia.
1878. *Xylobius Dawsoni*. Dawson, Supp. to Acad. Geol., p. 56, fig. 11d.
Carboniferous: Nova Scotia.
1890. *Xylobius Dawsoni*. Scudder, Foss. Insc. N. A., vol. 1, p. 25; fig. 4, p. 31.
Carboniferous: Joggins, Nova Scotia.

Xylobius fractus Scudder.

1868. *Xylobius fractus*. Scudder, Dawson's Acad. Geol., p. 496.
Carboniferous: Nova Scotia.
1873. *Xylobius fractus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 2, p. 234.
Carboniferous: Nova Scotia.
1878. *Xylobius fractus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 2, p. 561, fig. 3.
Carboniferous: Joggins, Nova Scotia.
1878. *Xylobius fractus*. Dawson, Supp. to Acad. Geol., p. 56, fig. 11c.
Carboniferous: Nova Scotia.
1890. *Xylobius fractus*. Scudder, Foss. Insc. N. A., vol. 1, p. 24; fig. 3, p. 31.
Carboniferous: Joggins, Nova Scotia.

Xylobius frusulentus Scudder.

1890. *Xylobius frustulentus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 438, pl. 37, figs. 4, 6.

Carboniferous: Mazon Creek, Illinois.

1890. *Xylobius frustulentus*. Scudder, Foss. Insc. N. A., vol. 1, p. 414, pl. 29, figs. 4, 6.

Carboniferous: Mazon Creek, Illinois.

Xylobius mazonus Scudder.

1890. *Xylobius mazonus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 439, pl. 37, figs. 7-11.

Carboniferous: Mazon Creek, Illinois.

1890. *Xylobius mazonus*. Scudder, Foss. Insc. N. A., vol. 1, p. 415, pl. 29, figs. 7-11.

Carboniferous: Mazon Creek, Illinois.

Xylobius sigillariae Dawson.

1860. *Xylobius Sigillariae*. Dawson, Quart. Jour. Geol. Soc. Lond., vol. 16, p. 271, figs. 4-9.

Coal Formation: South Joggins, Nova Scotia.

- * 1863. *Xylobius Sigillariae*. Dawson, Can. Nat. and Geol., vol. 8, p. 280, pl. 6, figs. 57-61.

Coal Formation: South Joggins, Nova Scotia.

1868. *Xylobius sigillariae*. Scudder, Am. Nat., vol. 1, p. 630, pl. 18, fig. 4.

Coal Measures: Nova Scotia.

1868. *Xylobius Sigillariae*. Dawson, Acad. Geol., p. 385, figs. 151a-c.

Coal Measures: South Joggins, Nova Scotia.

1873. *Xylobius sigillariae*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 2, pp. 232.

Carboniferous: Nova Scotia.

1878. *Xylobius sigillariae*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 2, p. 561, fig. 1.

Carboniferous: Nova Scotia.

1890. *Xylobius sigillariae*. Scudder, Foss. Insc. N. A., vol. 1, p. 22; fig. 1, p. 31.

Carboniferous: Nova Scotia.

Xylobius similis Scudder.

1868. *Xylobius similis*. Scudder, Dawson's Acad. Geol., p. 496.

Carboniferous: Nova Scotia.

1873. *Xylobius similis*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 2, p. 233.

Carboniferous: Nova Scotia.

1878. *Xylobius similis*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 2, p. 561, fig. 2.

Carboniferous: Joggins, Nova Scotia.

1878. *Xylobius similis*. Dawson, Supp. to Acad. Geol., p. 56, fig. 11b.

Carboniferous: Nova Scotia.

1890. *Xylobius similis*. Scudder, Foss. Insc. N. A., vol. 1, p. 23; fig. 2, p. 31.

Carboniferous: Joggins, Nova Scotia.

YOLDIA Muller, 1842.**Yoldia carbonaria** Meek.

- * 1871. *Yoldia (Palaeonilof) carbonaria*. Meek, Rep. Regents Univ. W. Va.

Coal Measures: Monongahela County, West Virginia.

1875. *Yoldia (Palaeonilof) carbonaria*. Meek, Pal. Ohio, vol. 2, p. 336, pl. 19, fig. 5.

Coal Measures: Monongahela County, West Virginia.

Yoldia knoxensis McChesney.

1860. *Leda polita*. McChesney, Desc. New Pal. Foss., p. 53.

Coal Measures: Dr. E. Hall's Mill, Pope Creek, Knox County, Illinois.
(Name preoccupied.)

1865. *Leda knoxensis*. McChesney, Ill. New Spec. Foss., pl. 2, figs. 9 a-c.

Yoldia knoxensis McChesney—Continued.

1868. *Yoldia knoxensis*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 39, pl. 2, figs. 9a-c.

Coal Measures: Pope Creek, Knox County, Illinois.

Yoldia levistriata Meek and Worthen.

1860. *Leda* (*Yoldia*?) *levistriata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 457.

St. Louis, L. S.: Waterloo, Monroe County, Illinois.

1866. *Yoldia*? *levistriata*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 282, pl. 20, figs. 7a, b.

St. Louis Group: Waterloo, Monroe County, Illinois.

Yoldia oweni McChesney.

1860. *Leda oweni*. McChesney, Desc. New Pal. Foss., p. 52.

Coal Measures: Mouth of Rush Creek, 5 miles below New Harmony, Indiana.

1865. *Leda oweni*. McChesney, Ill. New Spec. Foss., pl. 2, figs. 10 a-c.

1868. *Yoldia*? *Oweni*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 38, pl. 2, figs. 10a-c.

Coal Measures: Mouth of Rush Creek, 5 miles below New Harmony, Indiana.

Yoldia rushensis McChesney.

1860. *Leda gibbosa*. McChesney, Desc. New Pal. Foss., p. 53.

Coal Measures: On Wabash River, 5 miles below New Harmony, Indiana. (Name preoccupied.)

1865. *Leda rushensis*. McChesney, Ill. New Spec. Foss., pl. 2, figs. 13 a-b.

1868. *Yoldia rushensis*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 38, pl. 2, figs. 13a-c.

Coal Measures: On Wabash River, 5 miles below New Harmony, Indiana.

Yoldia stvensoni Meek.

- *1871. *Yoldia Stevensoni*. Meek, Rep. Regents Univ. W. Va.

Coal Measures: Monongahela County, West Virginia.

1875. *Yoldia Stevensoni*. Meek, Pal. Ohio, vol. 2, p. 335, pl. 19, figs. 4a, b.

Coal Measures: Monongahela County, West Virginia.

Yoldia subscitula Meek and Hayden.

1858. *Leda subscitula*. Meek and Hayden, Trans. Albany Inst., vol. 4, p. 79.

Permian: Kansas.

1864. *Yoldia*? *subscitula*. Meek and Hayden, Pal. Up. Mo., p. 60, pl. 2, figs. 4a, b.

Permian: Near Mouth of Smoky Hill Fork of Kansas River and on Cottonwood Creek, Kansas.

1866. *Nucula* (*Leda*) *subscitula*. Geinitz, Carb. und Dyas in Nebr., p. 22, tab. 1, fig. 35.

Nebraska City, Nebraska.

1872. *Yoldia subscitula*? Meek, U. S. Geol. Surv. Nebr., p. 205, pl. 10, fig. 10.

Upper Coal Measures: Nebraska City, Nebraska.

1891. *Yoldia*? *subscitula*. White, Bull. U. S. Geol. Surv., No. 77, p. 27, pl. 4, fig. 4.

Permian: Goodwin Creek, Baylor County, Texas.

1894. *Yoldia subscitula*. Keyes, Mo. Geol. Surv., vol. 5, p. 123.

Upper Coal Measures: Kansas City, Missouri.

ZAPHRENTIS Rafinesque, 1820.**Zaphrentis acuta** White and Whitfield.

1862. *Zaphrentis acutus*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 306.

Chemung Group: Burlington, Iowa.

Zaphrentis acuta White and Whitfield—Continued.

1865. *Zaphrentis acutus?* Winchell, Proc. Acad. Nat. Sci. Phil., p. 111.
Lithographic L. S.: Clarksville, Missouri.
1894. *Zaphrentis acuta*. Keyes, Mo. Geol. Surv., vol. 4, p. 109, pl. 13, fig. 4.
Kinderhook L. S.: Clarksville and Louisiana, Missouri.

Zaphrentis calcariformis Hall.

1882. *Zaphrentis calcariformis*. Hall, 12th Rep. Geol. Surv. Ind., p. 293, pl. 21, figs. 10, 11.
Corniferous L. S.: Falls of the Ohio.
1884. *Zaphrentis calcariformis*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 437.
Corniferous L. S.: Falls of the Ohio.
1890. *Zaphrentis calcariformis*. Worthen, Geol. Surv. Ill., vol. 8, p. 74, pl. 10, figs. 2, 2a.
Warsaw L. S.: Colesburg, Kentucky.

Zaphrentis calceola White and Whitfield.

1862. *Lophophyllum calceola*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 305.
Chemung Group: Burlington, Iowa.
1880. *Zaphrentis calceola*. White, Cont. to Inv. Pal., No. 8, p. 156, pl. 39, figs. 6a-d.
Top of Chouteau L. S. and base of Burlington L. S.: Sedalia, Missouri.
1889. *Zaphrentis calceola*. Rowley, Am. Geol., vol. 3, p. 275.
Upper Chouteau L. S.: Four miles east of Curryville, Missouri.
Lower Burlington L. S.: Louisiana, Missouri.
Upper Burlington L. S.: Two miles north of Curryville, Missouri.
1894. *Zaphrentis calceola*. Keyes, Mo. Geol. Surv., vol. 4, p. 110.
Kinderhook L. S.: Sedalia, Clarksville, Louisiana, and Hannibal, Missouri;
Burlington, Iowa.

Zaphrentis calyculus Miller.

1891. *Zaphrentis calyculus*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 10, pl. 1, figs. 13, 14.
Chouteau L. S.: Near Sedalia, Missouri.
1892. *Zaphrentis calyculus*. Miller, 17th Rep. Geol. Surv. Ind., p. 620, pl. 1, figs. 13, 14.
Chouteau L. S.: Near Sedalia, Missouri.

Zaphrentis cannonensis Winchell.

1869. *Zaphrentis Cannonensis*. Winchell, Safford's Geol. Tenn., p. 442.
Immediately above Black Shale: Manchester, Cannon County, Tennessee.

Zaphrentis carinatus Worthen.

1890. *Zaphrentis carinatus*. Worthen, Geol. Surv. Ill., vol. 8, p. 75, pl. 10, figs. 3, 3a.
Keokuk or St. Louis L. S.: Bentonsport, Iowa.

Zaphrentis casedayi Milne-Edwards.

1860. *Zaphrentis Casedayi*. Milne-Edwards, Hist. Nat. Corr., vol. 3, p. 341, pl. G1, fig. 2.
Carboniferous: Spergen Hill, Indiana.

Zaphrentis centralis Milne-Edwards and Haime.

1851. *Zaphrentis centralis*. Milne-Edwards and Haime, Monog. des Polyp. Foss., p. 328, pl. 3, fig. 6.
Carboniferous: Hills near Louisville, Kentucky.
1860. *Zaphrentis centralis*. Milne-Edwards, Hist. Nat. Corr., vol. 3, p. 336.
Carboniferous: Near Louisville, Kentucky.
1890. *Zaphrentis centralis*. Worthen, Geol. Surv. Ill., vol. 8, p. 72, pl. 9, figs. 1, 1a; pl. 10, figs. 13, 13a.
Keokuk L. S.: Warsaw and near Plymouth, Illinois.

Zaphrentis centralis Milne-Edwards and Haime—Continued.

1894. *Zaphrentis centralis*. Keyes, Mo. Geol. Surv., vol. 4, p. 112.
 Burlington L. S.: Louisiana, Hannibal, Helton, Ash Grove, Springfield, Sedalia, and Ste. Genevieve, Missouri.
 Keokuk L. S.: Lagrange and St. Francisville, Missouri; Keokuk and Bonaparte, Iowa; Warsaw, Illinois.

Zaphrentis chesterensis Worthen.

1890. *Zaphrentis chesterensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 73, pl. 9, figs. 3, 3a.
 Chester L. S.: Monroe and Randolph counties, Illinois.
 1894. *Zaphrentis chesterensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 115.
 Kaskaskia L. S.: Ste. Genevieve, Missouri.

Zaphrentis chouteauensis Miller.

1891. *Zaphrentis chouteauensis*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 10, pl. 1, figs. 11, 12.
 Chouteau L. S.: Near Sedalia, Missouri.
 1892. *Zaphrentis chouteauensis*. Miller, 17th Rep. Geol. Surv. Ind., p. 620, pl. 1, figs. 11, 12.
 Chouteau L. S.: Near Sedalia, Missouri.
 1894. *Zaphrentis chouteauensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 112.
 Chouteau L. S.: Sedalia, Missouri.

Zaphrentis cliffordana Milne-Edwards and Haime.

1851. *Zaphrentis cliffordana*. Milne-Edwards and Haime, Monog. des Polyp. Foss., p. 329, pl. 3, fig. 5.
 Carboniferous: Buttonmould Knobs, near Louisville; Mammoth Cave and Grayson County, Kentucky.
 1860. *Zaphrentis Cliffordana*. Milne-Edwards, Hist. Nat. Corr., vol. 3, p. 337.
 Carboniferous: Kentucky.
 1890. *Zaphrentis cliffordana*. Worthen, Geol. Surv. Ill., vol. 8, p. 75, pl. 10, figs. 1, 1b.
 Kinderhook Group: Monroe County, Illinois.
 1891. *Zaphrentis Cliffordana*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 576, pl. 13, figs. 1-3.
 Maxville L. S.: Maxville and Newtonville, Ohio.
 1895. *Zaphrentis Cliffordana*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 465, pl. 9, figs. 1-3.
 Maxville L. S.: Maxville and Newtonville, Ohio.

Zaphrentis compressa Milne-Edwards.

1860. *Zaphrentis compressa*. Milne-Edwards, Hist. Nat. Corr., vol. 3, p. 342, pl. G1, figs. 3, 4.
 Carboniferous: Spargen Hill, Indiana.

Zaphrentis cylindraceus Worthen.

1890. *Zaphrentis cylindraceus*. Worthen, Geol. Surv. Ill., vol. 8, p. 78, pl. 9, figs. 5, 5a.
 Chester L. S.: Chester, Illinois.
 1894. *Zaphrentis cylindracea*. Keyes, Mo. Geol. Surv., vol. 4, p. 111, pl. 13, fig. 5.
 Kaskaskia L. S.: Ste. Genevieve, Missouri; Chester, Illinois.

Zaphrentis cylindrica Milne-Edwards and Haime.

1858. *Zaphrentis cylindrica*. Marcon, Geol. N. A., p. 53, pl. 8, fig. 8.
 Mountain Limestone: Sierra de Sandia and Tigras, New Mexico.

Zaphrentis dalei Milne-Edwards and Haime.

1851. *Zaphrentis dalei*. Milne-Edwards and Haime, Monog. des Polyp. Foss., p. 329.
 Carboniferous: Warsaw, Illinois.

Zaphrentis dalei Milne-Edwards and Haime—Continued.

1852. *Cyathophyllum (fungites?)*. Owen, Geol. Rep. Wis., Iowa., and Minn., tab. 4, fig. 4.
Carboniferous L. S.: Keokuk Rapids of the Mississippi.
1858. *Zaphrentis spinulifera*. Hall, Geol. Iowa. vol. 1, pt. 2, p. 650, pl. 22, figs. 1a, b.
Warsaw L. S.: Warsaw, Illinois.
1860. *Zaphrentis Dalii*. Milne-Edwards, Hist. Nat. Corr., vol. 3, p. 337.
Carboniferous: Illinois.
1873. *Zaphrentis spinulifera*. White, Am. Jour. Sci. (3), vol. 5, p. 72.
St. Louis L. S.: Marion County, Iowa.
1890. *Zaphrentis dalei*. Worthen, Geol. Surv. Ill., vol. 8, p. 71, pl. 10, figs. 12, 12a.
Warsaw L. S.: Warsaw, Illinois.
1894. *Zaphrentis dalei*. Keyes, Mo. Geol. Surv., vol. 4, p. 113, pl. 13, fig. 12.
Keokuk L. S. and Shale: St. Francisville, Boonville, and Canton, Missouri.
Burlington L. S.: Hannibal, Louisiana, and Springfield, Missouri.

Zaphrentis declinis Miller.

1891. *Zaphrentis declinis*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 12, pl. 1, figs. 25, 26.
Keokuk Group: New Providence, Indiana.
1892. *Zaphrentis declinis*. Miller, 17th Rep. Geol. Surv. Ind., p. 622, pl. 1, figs. 25, 26.
Keokuk Group: New Providence, Indiana.

Zaphrentis elliptica White.

1862. *Zaphrentis elliptica*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 31.
Lower Burlington L. S.: Burlington, Iowa.
1880. *Zaphrentis elliptica*. White, Cont. to Inv. Pal. No. 8, p. 155, pl. 39, figs. 4a, b.
Burlington L. S.: Burlington, Iowa.
1894. *Zaphrentis elliptica*. Keyes, Mo. Geol. Surv., vol. 4, p. 111, pl. 13, figs. 6a, b.
Burlington L. S.: Louisiana, Missouri; Kinderhook, Illinois; Bonaparte, Iowa.

Zaphrentis excentrica Meek.

1873. *Zaphrentis excentrica*. Meek, U. S. Geol. Surv. Mont., Idaho, Wyo., and Utah, p. 468.
Carboniferous: "Old Baldy," near Virginia City, Montana.
1877. *Zaphrentis excentrica*. Meek, U. S. Geol. Surv. Expl. 40 Par., vol. 4, p. 52, pl. 4, figs. 1-1d.
Carboniferous L. S.: Boxelder Peak, Wasatch range, Utah.
1877. *Zaphrentis excentrica*. White, U. S. Geol. Surv. W. 100 Merid., vol. 4, p. 101, pl. 6, fig. 3a.
Carboniferous: Fossil Hill, White Pine County, Nevada.

Zaphrentis exigua Miller.

1891. *Zaphrentis exigua*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 11, pl. 1, figs. 19, 20.
Chouteau L. S.: Near Sedalia, Missouri.
1892. *Zaphrentis exigua*. Miller, 17th Rep. Geol. Surv. Ind., p. 621, pl. 1, figs. 19, 20.
Chouteau L. S.: Near Sedalia, Missouri.
1894. *Zaphrentis exigua*. Keyes, Mo. Geol. Surv., vol. 4, p. 112.
Chouteau L. S.: Sedalia, Missouri.

Zaphrentis gibsoni White.

1884. *Zaphrentis Gibsoni*. White, 13th Rep. Geol. Surv. Ind., p. 117, pl. 23, figs. 4, 5.
Coal Measures: Vermillion County, Indiana.

Zaphrentis glans. See *Hadrophyllum glans*.

Zaphrentis ida Winchell.

1865. *Zaphrentis Ida*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 111.
Goniatite L. S.: Rockford, Indiana.
1869. *Zaphrentis Ida*? Winchell, Safford's Geol. Tenn., p. 444.
Shales just above Black Shale: Hickman and Maury counties, Tennessee.
1870. *Zaphrentis Ida*? Winchell, Proc. Am. Phil. Soc., vol. 11, p. 247.
Waverly Group: Hickman County, Tennessee; Sciotoville, Ohio.

Zaphrentis illinoisensis Worthen.

1890. *Zaphrentis illinoensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 77, pl. 9, figs. 4, 4a.
Keokuk L. S.: Warsaw and near Plymouth, Illinois.
1894. *Zaphrentis illinoisensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 113.
Keokuk L. S.: Wayland, Missouri; Warsaw, Illinois; Keokuk and Bonaparte, Iowa.

Zaphrentis lanceolata Worthen.

1890. *Zaphrentis lanceolatus*. Worthen, Geol. Surv. Ill., vol. 8, p. 76, pl. 10, figs. 4, 4a.
Warsaw L. S.: Spergen Hill, Indiana; Colesburg, Kentucky.

Zaphrentis minas Dawson.

1868. *Zaphrentis Minas*. Dawson, Acad. Geol., p. 286, fig. 84a.
Carboniferous L. S.: Kennetcook, Nova Scotia.

Zaphrentis multilamella Hall.

1852. *Zaphrentis? multilamella*. Hall, Stansb. Exped. Gt. Salt Lake, p. 408, pl. 1, fig. 2.
Carboniferous: Cloth Cap and Flat Rock, Great Salt Lake, Utah.
1877. *Zaphrentis? (Clisiophyllum?) multilamella*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 53, pl. 6, figs. 4-4b.
Carboniferous L. S.: Strong's Knob, on an island in Great Salt Lake, Utah

Zaphrentis ovidos Salter.

1855. *Zaphrentis Ovidos*. Salter, Belcher's "Last of the Arctic Voyages," p. 382, pl. 36, fig. 5.
Carboniferous: Depot Point.

Zaphrentis parasitica Worthen.

1890. *Zaphrentis parasitica*. Worthen, Geol. Surv. Ill., vol. 8, p. 79, pl. 10, figs. 5, 5a.
Kinderhook Group: Clarksville, Missouri.

Zaphrentis pellaensis Worthen.

1890. *Zaphrentis pellaensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 74, pl. 9, figs. 6, 6a; pl. 10, figs. 11, 11a.
St. Louis Shales: Near Pella, Iowa.

Zaphrentis prona Milne-Edwards.

1860. *Zaphrentis prona*. Milne-Edwards, Hist. Nat. Corr., vol. 3, p. 342.
Carboniferous: Spergen Hill, Indiana.

Zaphrentis reversa Worthen.

1890. *Zaphrentis reversa*. Worthen, Geol. Surv. Ill., vol. 8, p. 78.
Warsaw L. S.: Near Columbia, Monroe County, Illinois.

Zaphrentis spergenensis Worthen.

1890. *Zaphrentis spergenensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 77, pl. 10, figs. 8, 8a.
Warsaw L. S.: Spergen Hill, Indiana; Warsaw, Illinois.
1894. *Zaphrentis spergenensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 115.
Keokuk L. S.: Wayland and Booneville, Missouri; Keokuk, Iowa; Warsaw, Illinois.

Zaphrentis spinulifera. See *Zaphrentis dalei*.

***Zaphrentis spinulosa* Milne-Edwards and Haime.**

1851. *Zaphrentis spinulosa*. Milne-Edwards and Haime, Monog. des Blyp. Foss., p. 334, pl. 5, figs. 7, 7a.
Carboniferous: Chester and Kaskaskia, Illinois.
1860. *Zaphrentis spinulosa*. Milne-Edwards, Hist. Nat. Corr., vol. 3, p. 340, pl. 5, figs. 7, 7a.
Carboniferous: Illinois.
1876. *Zaphrentis spinulosa* (?) Rominger, Geol. Surv. Mich., vol. 3, pt. 2, p. 152, pl. 54, 5 figures.
Carboniferous L. S.: Saginaw Bay, Point aux Grees and on Charity Islands, Michigan.
1890. *Zaphrentis spinulosa*. Worthen, Geol. Surv. Ill., vol. 8, p. 73, pl. 10, figs. 6, 6a.
Chester L. S.: Chester, Illinois.
1894. *Zaphrentis spinulosa*. Keyes, Mo. Geol. Surv., vol. 4, p. 114.
Keokuk L. S.: Curryville, St. Francisville, and Boonville, Missouri; Keokuk, Iowa.
St. Louis L. S.: Clark County and St. Louis County, Missouri; Fort Dodge, Pella, Fairfield, and Mount Pleasant, Iowa.
Kaskaskia L. S.: Ste. Genevieve, Missouri.

***Zaphrentis stansburyi* Hall.**

1852. *Zaphrentis stansburyi*. Hall, Stansb. Exped. Gt. Salt Lake, p. 408, pl. 1, figs. 3a, b.
Carboniferous: Stansbury's Island, Cloth Cap, and Flat Rock Point, Great Salt Lake, Utah.
1858. *Zaphrentis stansburyi*. Marcon, Geol. N. A., p. 52, pl. 7, fig. 7.
Mountain L. S.: Tigras, Pecos Village, and Sierra de Sandia, New Mexico.
1860. *Zaphrentis Stansburyi*. Milne-Edwards, Hist. Nat. Corr., vol. 3, p. 347.
Carboniferous: Great Salt Lake.
1877. *Zaphrentis ? Stansburyi ?* Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 54, pl. 6, figs. 3-3c.
Carboniferous L. S.: Boxelder and Logan's peaks, Wasatch range. Divide between Ross Fork and Lincoln Valley, Idaho.

***Zaphrentis tantilla* Miller.**

1891. *Zaphrentis tantilla*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 11, pl. 1, figs. 23, 24.
Chouteau L. S.: Near Sedalia, Missouri.
1892. *Zaphrentis tantilla*. Miller, 17th Rep. Geol. Surv. Ind., p. 621, pl. 1, figs. 23, 24.
Chouteau L. S.: Near Sedalia, Missouri.
1894. *Zaphrentis tantilla*. Keyes, Mo. Geol. Surv., vol. 4, p. 111.
Kinderhook L. S.: Sedalia, Missouri.
Burlington L. S.: Louisiana and Hannibal, Missouri.

***Zaphrentis tenella* Miller.**

1891. *Zaphrentis tenella*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 11, pl. 1, figs. 17, 18.
Chouteau L. S.: Near Sedalia, Missouri.
1892. *Zaphrentis tenella*. Miller, 17th Rep. Geol. Surv. Ind., p. 621, pl. 1, figs. 17, 18.
Chouteau L. S.: Near Sedalia, Missouri.
1894. *Zaphrentis tenella*. Keyes, Mo. Geol. Surv., vol. 4, p. 111, pl. 13, fig. 10.
Kinderhook L. S.: Sedalia and Louisiana, Missouri.

***Zaphrentis ulrichi* Worthen.**

1890. *Zaphrentis ulrichi*. Worthen, Geol. Surv. Ill., vol. 8, p. 76, pl. 10, figs. 10, 10a.
Warsaw L. S.: Colesburg, Kentucky.

***Zaphrentis warsoviensis* Worthen.**

1890. *Zaphrentis warsoviensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 78, pl. 10, figs. 9, 9a.

Keokuk L. S.: Warsaw, Hamilton, and Nauvoo, Illinois; Keokuk, Iowa.

1894. *Zaphrentis warsoviensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 114.

Keokuk L. S.: La Grange, Missouri; Warsaw, Ill.

***Zaphrentis* (undetermined species).**

1877. *Zaphrentis* — (f) Whiteaves, Geol. Surv. Can. Rep. of Prog. 1875-76, p. 98.

Devonian or Carboniferous: Fossil Point, Peace River, Canada.

1887. *Zaphrentis* sp. Herrick, Bull. Den. Univ., vol. 2, p. 50, pl. 2, fig. 21.

Coal Measures: Flint Ridge, Ohio.

1888. *Zaphrentis* (f) Herrick, Bull. Den. Univ., vol. 4, pl. 8, fig. 6.

Waverly Group: Rushville, Ohio.

1895. *Zaphrentis*? Herrick, Geol. Surv. Ohio, vol. 7, pl. 19, fig. 6.

Burlington or Keokuk: Rushville, Ohio.

1897. *Zaphrentis* sp. indet. Smith, Proc. Am. Phil. Soc., vol. 35, p. 25.

Lower Coal Measures: Crawford and Conway counties, Arkansas.

ZAPTUCHIUS* Walcott, 1884.**Zaptuchius carbonaria* Walcott.**

1883. *Zaptuchius carbonaria*. Walcott, Science, vol. 2, p. 808, fig. 1.

Base of Carboniferous: Eureka District, Nevada.

1884. *Zaptuchius carbonaria*. Walcott, Pal. Eureka District, p. 263, fig. 7.

Lower Carboniferous: Eureka District, Nevada.

***ZEACRINUS* Troost, 1850.**

Zeacrinus acanthophorus. See *Hydreionocrinus acanthophorus*.

Zeacrinus arboreus. See *Woodocrinus arboreus*.

Zeacrinus armiger. See *Hydreionocrinus armiger*.

Zeacrinus asper. See *Woodocrinus asper*.

***Zeacrinus bellulus* Miller and Gurley.**

1894. *Zeacrinus bellulus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 34, pl. 3, fig. 8.

Kaskaskia Group: Near Shoals, Martin County, Indiana.

***Zeacrinus bifurcatus* McChesney.**

1860. *Zeacrinus bifurcatus*. McChesney, Desc. New Pal. Foss., p. 9.

Kaskaskia L. S.: Kaskaskia, Illinois.

1865. *Zeacrinus bifurcatus*. McChesney, Ill. New Spec. Foss., pl. 5, fig. 3.

1868. *Zeacrinus bifurcatus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 6, pl. 5, fig. 3.

Chester L. S.: Kaskaskia, Illinois.

***Zeacrinus blairi* Miller and Gurley.**

1895. *Zeacrinus blairi*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 66, pl. 4, figs. 5, 6.

Zeacrinus cariniferus. See *Cœliocrinus cariniferus*.

***Zeacrinus commaticus* Miller.**

1891. *Zeacrinus commaticus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 36, pl. 5, figs. 10, 11.

Keokuk Group: Boonville, Missouri.

1891. *Zeacrinus commaticus*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 44, pl. 8, fig. 8.

Keokuk Group: Boonville, Missouri.

***Zeacrinus compactilis* Worthen.**

1873. *Zeacrinus compactilis*. Worthen, Geol. Surv. Ill., vol. 5, p. 596, pl. 21, fig. 5.
Lower Carboniferous: Cumberland County, Kentucky.

Zeacrinus coxanus*. See *Woodocrinus coxanus*.**Zeacrinus crassus*. See *Eupachycrinus crassus*.*****Zeacrinus cylindricus* Miller and Gurley.**

1894. *Zeacrinus cylindricus*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 38, pl. 3, figs. 19-21.
Kaskaskia Group: Pulaski County, Kentucky.

Zeacrinus depressus*. See *Hydreionocrinus depressus*.**Zeacrinus discus*. See *Hydreionocrinus discus*.*****Zeacrinus doverensis* Miller and Gurley.**

1896. *Zeacrinus doverensis*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 35, pl. 2, figs. 20-22.
Kaskaskia Group: Dover Hill, Indiana.

***Zeacrinus dubius* Miller and Gurley.**

1890. *Zeacrinus dubius*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 361, pl. 7, figs. 7, 8.
Keokuk Group: Bono, Indiana.

***Zeacrinus durabilis* Miller and Gurley.**

1895. *Zeacrinus durabilis*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 48, pl. 4, figs. 14-15.
Kaskaskia Group: Pulaski County, Kentucky.

Zeacrinus elegans*. See *Woodocrinus elegans*.**Zeacrinus faggi* Rowley and Hare.**

1891. *Zeacrinus faggi*. Rowley and Hare. The Kansas City Scientist, vol. 5, p. 103, pl. 2, fig. 20.
Upper Burlington L. S.: Spencer Creek, 2 miles north of Curryville, Missouri.

***Zeacrinus florealis* Yandell and Shumard.**

1847. *Cyathocrinus florealis*. Yandell and Shumard, Cont. to Geol. of Ky., p. 24, pl., fig. 1.
Grayson, Kentucky.

Zeacrinus formosus*. See *Eupachycrinus formosus*.**Zeacrinus grandiculus* Miller and Gurley.**

1894. *Zeacrinus grandiculus*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 32, pl. 2, figs. 31, 32.
Kaskaskia Group: Bowling Green, Kentucky.

***Zeacrinus intermedius* Hall.**

1858. *Zeacrinus intermedius*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 681, pl. 25, fig. 4.
Kaskaskia L. S.: Chester, Illinois.
1882. *Zeacrinus intermedius*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 17 (footnote).
St. Louis L. S. (not Chester, as reported by Hall).

***Zeacrinus kentuckiensis* Miller and Gurley.**

1896. *Zeacrinus kentuckiensis*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 37, pl. 2, figs. 23, 24.
Kaskaskia Group: Pulaski County, Kentucky.

***Zeacrinus keokuk* Worthen.**

1882. *Zeacrinus keokuk*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 28.
Upper part of geodiferous shales of Keokuk Group: One mile below Keokuk, Iowa.
1883. *Zeacrinus Keokuk*. Worthen, Geol. Surv. Ill., vol. 7, p. 303, pl. 28, fig. 3.
Keokuk Group (upper part of geode bed): One mile below Keokuk, Iowa.

Zeacrinus lyra*. See *Caeliocrinus lyra*.**Zeacrinus magnoliaeformis* Owen and Norwood.**

- *1846. *Cyathocrinus magnoliaeformis*. Owen and Norwood, Researches Carb. Rocks, Kentucky.
1858. *Zeacrinus magnoliaeformis*. Hall, Geol. Iowa, vol. 1, pt. 2, pp. 544 and 684.
Kaskaskia L. S.: Tennessee.
1894. *Zeacrinus magnoliaeformis*. Keyes, Mo. Geol. Surv., vol. 4, p. 214
Kaskaskia L. S.: Chester, Illinois.

Zeacrinus maniformis*. See *Eupachycrinus maniformis*.**Zeacrinus merope*. See *Woodocrinus merope*.*****Zeacrinus mooresi*. See *Eupachycrinus mooresi*.*****Zeacrinus mucrospinus*. See *Hydreionocrinus mucrospinus*.*****Zeacrinus nitidus* Miller and Gurley.**

1894. *Zeacrinus nitidus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 36, pl. 6, figs. 3, 4.
Kaskaskia Group: Randolph County, Illinois.

***Zeacrinus nodosus* Wachsmuth and Springer.**

1886. *Zeacrinus nodosus*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 167. (Rev. Palaeocr. III, p. 243, pl. 6, fig. 9, and pl. 9, fig. 3.)
Keokuk L. S.: White's Creek Springs, Tennessee.

***Zeacrinus obesus* Miller and Gurley.**

1894. *Zeacrinus obesus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 35, pl. 4, figs. 6-8.
Kaskaskia Group: Flag Pond, Virginia.

***Zeacrinus ovalis* Lyon and Casseday.**

1860. *Zeacrinus ovalis*. Lyon and Casseday, Am. Jour. Sci. (2), vol. 29, p. 71.
Third L. S. of Millstone Grit Series: Grayson, Breckenridge, Edmonson, and Todd counties, Kentucky.

Zeacrinus paternus*. See *Woodocrinus paternus*.**Zeacrinus peculiaris* Miller and Gurley.**

1896. *Zeacrinus peculiaris*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 34, pl. 2, figs. 17-19.
Kaskaskia Group: Pulaski County, Kentucky.

Zeacrinus perangulatus*. See *Woodocrinus perangulatus*.**Zeacrinus pikensis*. See *Scaphiocrinus pikensis*.*****Zeacrinus planobrachiatus*. See *Woodocrinus planobrachiatus*.*****Zeacrinus pocillum*. See *Woodocrinus pocillum*.*****Zeacrinus pulaskiensis* Miller and Gurley.**

1895. *Zeacrinus pulaskiensis*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 47, pl. 4, figs. 12, 13.
Kaskaskia Group: Pulaski County, Kentucky.

***Zeacrinus ramosus*. See *Woodocrinus ramosus*.**

Zeacrinus sacculus. See *Woodocrinus troostanus*.

Zeacrinus sacculus var. *concinnus*. See *Woodocrinus troostanus*.

Zeacrinus salemensis Miller and Gurley.

1894. *Zeacrinus salemensis*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 37, pl. 3, fig. 17.
Keokuk Group: Salem, Indiana.

Zeacrinus scobina. See *Woodocrinus scobina*.

Zeacrinus scoparius. See *Woodocrinus troostanus*.

Zeacrinus serratus. See *Woodocrinus serratus*.

Zeacrinus spinuliferus Worthen.

1890. *Poteriocrinus spinuliferus*. Worthen, Geol. Surv. Ill., vol. 8, p. 90, pl. 17, figs. 1, 1a.
Chester L. S., Monroe County, Illinois.

Zeacrinus stimpsoni. See *Decadocrinus stimpsoni*.

Zeacrinus subtumidus. See *Eupachycrinus subtumidus*.

Zeacrinus troostanus. See *Woodocrinus troostanus*.

Zeacrinus wortheni Hall.

1858. *Zeacrinus wortheni*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 683.
Kaskaskia L. S.: Chester, Illinois.

Zeacrinus (species undetermined).

1873. *Zeacrinus* (sp. undet.). Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 1, fig. 4.
Burlington Group.

ZONITES Montfort, 1810.

Zonites priscus Carpenter.

1867. *Zonites (Conulus) priscus*. Carpenter, Quart. Jour. Geol. Soc. Lond., vol. 23, p. 331, figs. a-e.
Coal Formation: South Joggins, Nova Scotia.
1868. *Zonites (Conulus) priscus*. Dawson, Acad. Geol., p. 385, figs. 150a, b.
Coal Measures: Joggins, Nova Scotia.
1880. *Zonites (Conulus) priscus*. Dawson, Am. Jour. Sci. (3), vol. 20, p. 411, figs. 10, 11, 14d.
Coal Measures: South Joggins, Nova Scotia.
1883. *Zonites priscus*. White, 3d Am. Rep. U. S. Geol. Surv., p. 453, pl. 2, figs. 11, 12.

***Zeacrinus keokuk* Worthen.**

1882. *Zeacrinus keokuk*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 28.
Upper part of geodiferous shales of Keokuk Group: One mile below Keokuk, Iowa.
1883. *Zeacrinus keokuk*. Worthen, Geol. Surv. Ill., vol. 7, p. 303, pl. 28, fig. 3.
Keokuk Group (upper part of geode bed): One mile below Keokuk, Iowa.

Zeacrinus lyra*. See *Cœliocrinus lyra*.**Zeacrinus magnoliaeformis* Owen and Norwood.**

- *1846. *Cyathocrinus magnoliaeformis*. Owen and Norwood, Researches Carb. Rocks, Kentucky.
1858. *Zeacrinus magnoliaeformis*. Hall, Geol. Iowa, vol. 1, pt. 2, pp. 544 and 684.
Kaskaskia L. S.: Tennessee.
1894. *Zeacrinus magnoliaeformis*. Keyes, Mo. Geol. Surv., vol. 4, p. 214
Kaskaskia L. S.: Chester, Illinois.

Zeacrinus maniformis*. See *Eupachycrinus maniformis*.**Zeacrinus merope*. See *Woodocrinus merope*.*****Zeacrinus mooresi*. See *Eupachycrinus mooresi*.*****Zeacrinus mucrospinus*. See *Hydreionocrinus mucrospinus*.*****Zeacrinus nitidus* Miller and Gurley.**

1894. *Zeacrinus nitidus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 36, pl. 6, figs. 3, 4.
Kaskaskia Group: Randolph County, Illinois.

***Zeacrinus nodosus* Wachsmuth and Springer.**

1886. *Zeacrinus nodosus*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 167. (Rev. Palaeogr. III, p. 243, pl. 6, fig. 9, and pl. 9, fig. 3.)
Keokuk L. S.: White's Creek Springs, Tennessee.

***Zeacrinus obesus* Miller and Gurley.**

1894. *Zeacrinus obesus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 35, pl. 4, figs. 6-8.
Kaskaskia Group: Flag Pond, Virginia.

***Zeacrinus ovalis* Lyon and Casseday.**

1860. *Zeacrinus ovalis*. Lyon and Casseday, Am. Jour. Sci. (2), vol. 29, p. 71.
Third L. S. of Millstone Grit Series: Grayson, Breckenridge, Edmonson, and Todd counties, Kentucky.

Zeacrinus paternus*. See *Woodocrinus paternus*.**Zeacrinus peculiaris* Miller and Gurley.**

1896. *Zeacrinus peculiaris*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 34, pl. 2, figs. 17-19.
Kaskaskia Group: Pulaski County, Kentucky.

Zeacrinus perangulatus*. See *Woodocrinus perangulatus*.**Zeacrinus pikensis*. See *Scaphiocrinus pikensis*.*****Zeacrinus planobrachiatus*. See *Woodocrinus planobrachiatus*.*****Zeacrinus pocillum*. See *Woodocrinus pocillum*.*****Zeacrinus pulaskiensis* Miller and Gurley.**

1895. *Zeacrinus pulaskiensis*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 47, pl. 4, figs. 12, 13.
Kaskaskia Group: Pulaski County, Kentucky.

***Zeacrinus ramosus*. See *Woodocrinus ramosus*.**

Zeacrinus sacculus. See *Woodocrinus troostanus*.

Zeacrinus sacculus var. *concinus*. See *Woodocrinus troostanus*.

Zeacrinus salemensis Miller and Gurley.

1894. *Zeacrinus salemensis*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 37, pl. 3, fig. 17.
Keokuk Group: Salem, Indiana.

Zeacrinus scobina. See *Woodocrinus scobina*.

Zeacrinus scoparius. See *Woodocrinus troostanus*.

Zeacrinus serratus. See *Woodocrinus serratus*.

Zeacrinus spinuliferus Worthen.

1890. *Poteriocrinus spinuliferus*. Worthen, Geol. Surv. Ill., vol. 8, p. 90, pl. 17, figs. 1, 1a.
Chester L. S., Monroe County, Illinois.

Zeacrinus stimpsoni. See *Decadocrinus stimpsoni*.

Zeacrinus subtumidus. See *Eupachyrcrinus subtumidus*.

Zeacrinus troostanus. See *Woodocrinus troostanus*.

Zeacrinus wortheni Hall.

1858. *Zeacrinus wortheni*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 683.
Kaskaskia L. S.: Chester, Illinois.

Zeacrinus (species undetermined).

1873. *Zeacrinus* (sp. undet.). Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 1, fig. 4.
Burlington Group.

ZONITES Montfort, 1810.

Zonites priscus Carpenter.

1867. *Zonites (Conulus) priscus*. Carpenter, Quart. Jour. Geol. Soc. Lond., vol. 23, p. 331, figs. a-e.
Coal Formation: South Joggins, Nova Scotia.
1868. *Zonites (Conulus) priscus*. Dawson, Acad. Geol., p. 385, figs. 150a, b.
Coal Measures: Joggins, Nova Scotia.
1880. *Zonites (Conulus) priscus*. Dawson, Am. Jour. Sci. (3), vol. 20, p. 411, figs. 10, 11, 14d.
Coal Measures: South Joggins, Nova Scotia.
1883. *Zonites priscus*. White, 3d Am. Rep. U. S. Geol. Surv., p. 453, pl. 2, figs. 11, 12.

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[Bulletin 153.]

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35	Gadsden	Alabama	86°-86° 30'	34°-34° 30'	986	25
36	Pueblo	Colorado	104° 30'-105°	38°-38° 30'	938	50
37	Downeville	California.	120° 30'-121°	39° 30'-40°	919	25
38	Butte Special	Montana.	112° 29' 30"-112° 36' 42"	45° 59' 28"-46° 02' 54"	22.80	50
39	Truckee	California.	120°-120° 30'	39°-39° 30'	925	25
40	Wartburg	Tennessee	84° 30'-85°	38°-38° 30'	963	25
41	Sonora	California.	120°-120° 30'	37°-38°-38°	944	25

STATISTICAL PAPERS.

Mineral Resources of the United States, 1882, by Albert Williams, jr. 1883. 8°. xvii, 813 pp. Price 50 cents.

Mineral Resources of the United States, 1883 and 1884, by Albert Williams, jr. 1885. 8°. xiv, 1016 pp. Price 60 cents.

Mineral Resources of the United States, 1885. Division of Mining Statistics and Technology. 1886. 8°. vii, 576 pp. Price 40 cents.

Mineral Resources of the United States, 1886, by David T. Day. 1887. 8°. viii, 813 pp. Price 50 cents.

Mineral Resources of the United States, 1887, by David T. Day. 1888. 8°. vii, 832 pp. Price 50 cents.

Mineral Resources of the United States, 1888, by David T. Day. 1890. 8°. vii, 652 pp. Price 50 cents.

Mineral Resources of the United States, 1889 and 1890, by David T. Day. 1892. 8°. viii, 671 pp. Price 50 cents.

Mineral Resources of the United States, 1891, by David T. Day. 1893. 8°. vii, 630 pp. Price 50 cents.

Mineral Resources of the United States, 1892, by David T. Day. 1893. 8°. vii, 850 pp. Price 50 cents.

Mineral Resources of the United States, 1893, by David T. Day. 1894. 8°. viii, 810 pp. Price 50 cents.

On March 2, 1895, the following provision was included in an act of Congress:

"Provided, That hereafter the report of the mineral resources of the United States shall be issued as a part of the report of the Director of the Geological Survey."

In compliance with this legislation the following reports have been published:

Mineral Resources of the United States, 1894, David T. Day, Chief of Division. 1895. 8°. xv, 646 pp., 23 pl.; xix, 735 pp., 6 pl. Being Parts III and IV of the Sixteenth Annual Report.

Mineral Resources of the United States, 1895, David T. Day, Chief of Division. 1896. 8°. xxiii, 542 pp., 8 pl. and maps; iii, 543-1058 pp., 9-13 pl. Being Part III (in 2 vols.) of the Seventeenth Annual Report.

Mineral Resources of the United States, 1896, David T. Day, Chief of Division. 1897. 8°. xii, 642 pp., 1 pl.; 643-1400 pp. Being Part V (in 2 vols.) of the Eighteenth Annual Report.

The report on the mineral resources for the calendar year 1897 will form a part of the Nineteenth Annual Report of the Survey.

The money received from the sale of the Survey publications is deposited in the Treasury, and the Secretary of the Treasury declines to receive bank checks, drafts, or postage stamps; all remittances, therefore, must be by MONEY ORDER, made payable to the Director of the United States Geological Survey, or in CURRENCY—the exact amount. Correspondence relating to the publications of the Survey should be addressed to—

THE DIRECTOR,

UNITED STATES GEOLOGICAL SURVEY,

WASHINGTON, D. C.

WASHINGTON, D. C., August, 1898.



[Take this leaf out and paste the separated titles upon three of your catalogue cards. The first and second titles need no addition; over the third write that subject under which you would place the book in your library.]

LIBRARY CATALOGUE SLIPS.

Series.	United States. <i>Department of the interior. (U. S. geological survey.)</i> Department of the interior — Bulletin of the United States geological survey no. 153 [Seal of the department] Washington government printing office 1898 <i>Second title:</i> United States geological survey Charles D. Wal- cott, director — A bibliographic index of North American Carboniferous invertebrates by Stuart Weller [Vignette] Washington government printing office 1898 8°. 653 pp.
Author.	Weller (Stuart). United States geological survey Charles D. Walcott, di- rector — A bibliographic index of North American Car- boniferous invertebrates by Stuart Weller [Vignette] Washington government printing office 1898 8°. 653 pp. [UNITED STATES. <i>Department of the interior. (U. S. geological survey.)</i> Bulletin 153.]
Subject.	United States geological survey Charles D. Walcott, di- rector — A bibliographic index of North American Car- boniferous invertebrates by Stuart Weller [Vignette] Washington government printing office 1898 8°. 653 pp. [UNITED STATES. <i>Department of the interior. (U. S. geological survey.)</i> Bulletin 153.]

By G. E. Hyde and W

DEPARTMENT OF THE INTERIOR

72/63

BULLETIN

OF THE

UNITED STATES

GEOLOGICAL SURVEY

No. 154



WASHINGTON
GOVERNMENT PRINTING OFFICE
1898

By G. E. Hyde and W

DEPARTMENT OF THE INTERIOR

82163

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1898



UNITED STATES GEOLOGICAL SURVEY

CHARLES D. WALCOTT, DIRECTOR

A GAZETTEER OF KANSAS

BY

HENRY GANNETT



WASHINGTON
GOVERNMENT PRINTING OFFICE
1898

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LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
UNITED STATES GEOLOGICAL SURVEY,
Washington, D. C., May 6, 1898.

SIR: I beg to transmit herewith, for publication as a bulletin, a
gazetteer of Kansas.

Very respectfully,

HENRY GANNETT,
Geographer,

Hon. CHARLES D. WALCOTT,
Director United States Geological Survey.

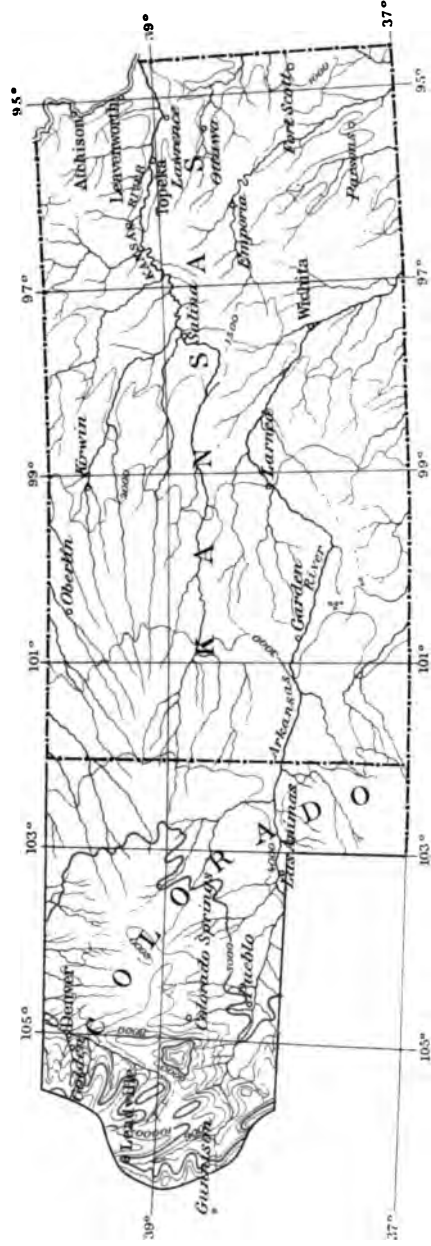
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TERRITORY OF KANSAS.

Scale

50 25 0 50 STAT MILES

A GAZETTEER OF KANSAS.

By HENRY GANNETT.

GENERAL DESCRIPTION OF THE STATE.

The Territory of Kansas was organized on May 30, 1854, its area having formerly been under the jurisdiction of Missouri Territory. Nearly all the region comprising the Territory was originally acquired by the United States as a part of the Louisiana purchase in 1803. The following clause from the act of organization of the Territory defines its limits:

All that part of the territory of the United States included within the following limits, except such portions thereof as are hereinafter expressly exempted from the operations of this act, to wit: Beginning at a point on the western boundary of the State of Missouri, where the thirty-seventh parallel of north latitude crosses the same; thence west on said parallel to the eastern boundary of New Mexico; thence north on said boundary to latitude thirty-eight; thence following said boundary westward to the east boundary of the Territory of Utah, on the summit of the Rocky Mountains; thence northward on said summit to the fortieth parallel of latitude; thence east on said parallel to the western boundary of the State of Missouri; thence south with the western boundary of said State to the place of beginning, be, and the same is hereby, created into a temporary government by the name of the Territory of Kansas.

In 1861 the Territory of Colorado was organized, taking from Kansas Territory all that part which lay west of the twenty-fifth meridian west of Washington. At the same time, on January 29, 1861, Kansas was admitted into the Union as a State, with its present boundaries, which are thus defined in the enabling act:

The said State shall consist of all the territory included within the following boundaries, towit: Beginning at a point on the western boundary of the State of Missouri, where the thirty-seventh parallel of north latitude crosses the same; thence west on said parallel to the twenty-fifth meridian of longitude west from Washington; thence north on said meridian to the fortieth parallel of latitude; thence east on said parallel to the western boundary of the State of Missouri; thence south with the western boundary of said State to the place of beginning.

As will be seen, besides the reduction for the formation of Colorado, Kansas was increased by the area on the southwest, which was taken from New Mexico. This addition was derived from territory brought into the Union by the annexation of Texas and purchase from that State by the United States.

Although the settlement of Kansas has been practically effected within the last half century, its exploration began at an early period.

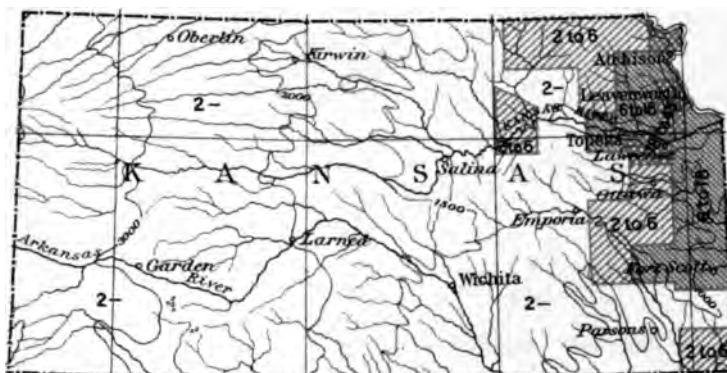
More than three and a half centuries ago, in 1541, Vasquez de Coronado, a Spaniard, led an expedition from Mexico through New Mexico and across Kansas toward the northeast, searching for the mythical city of Quivira. His expedition, however, came and went and left no trace behind. In latter years settlement spread from New Mexico northward upon the plains of Colorado, but, so far as known, none reached the western or the southern boundary of this State, and there is no record of further attempts at exploration until the territory passed into the hands of the United States in 1803. Then commenced a series of explorations, under conduct of army officers, beginning with the famous expedition of Pike, in 1807, and ending with the Pacific Railroad explorations in the early fifties. These expeditions traversed the region in all directions and in an exploration sense made its area well known.

In the days of the early movement to California the State was traversed by a vast migration, which followed, in the main, two routes: One ran from Independence, in western Missouri, northwestward across the northeast corner of the State to Fort Kearney, Nebraska, and thence up Platte River; the other, starting from the same point, ran southwest to the Arkansas, and then followed up that river, going to Santa Fe. This, which is called the Santa Fe trail, traversed the whole breadth of Kansas from east to west. This vast migration across the State, however, left but few traces in the way of settlement, for in 1855 the region contained but 8,600 inhabitants. Five years later the number exceeded 100,000, and rapidly increased until, in 1888, it reached a maximum with 1,518,552. Since then it has diminished, from causes to be hereinafter explained, and in 1895 reached a minimum of 1,334,734. In 1896 it had slightly increased, the population numbering 1,336,659.

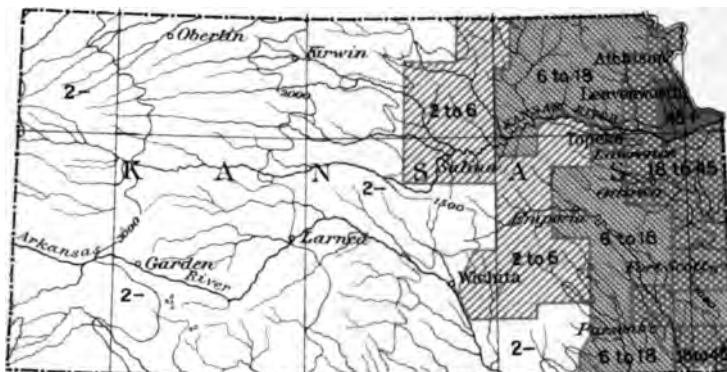
The following table gives the population, as derived from censuses taken by the United States and the State, at different periods:

Population of Kansas at different times since 1855.

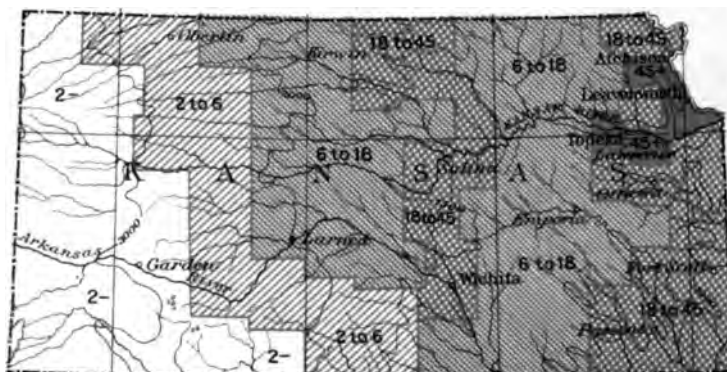
Year.	Population.	Census.
1855.....	8,601	State.
1860.....	107,206	Federal.
1865.....	140,179	State.
1870.....	364,399	Federal.
1875.....	528,349	State.
1880.....	996,096	Federal.
1885.....	1,268,530	State.
1886.....	1,406,738	State.
1887.....	1,514,578	State.
1888.....	1,518,552	State.
1890.....	1,427,096	Federal.
1895.....	1,334,734	State.
1896.....	1,336,659	State.



DENSITY OF POPULATION 1860.



DENSITY OF POPULATION 1870.



DENSITY OF POPULATION 1880.

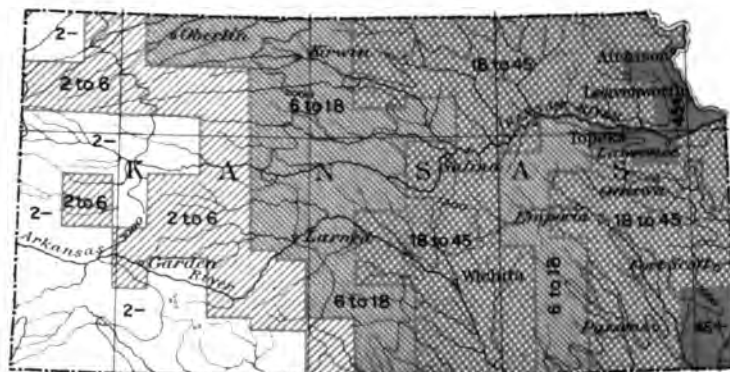




DENSITY OF POPULATION 1886.



DENSITY OF POPULATION 1890.



DENSITY OF POPULATION 1896.



The early settlement of the State was effected by two factions, one largely made up of immigrants from Missouri, who were determined to make it a slave State; the other mainly from New England, equally determined that it should be a free State. During the late years of its life as a Territory war between these factions was continuous and often bloody, and the struggle was terminated only by the election of the free-soil candidate for President in 1860.

Since the admission of the State to the Union its progress in population and industries has been, in great part, dependent upon climate. As will be seen from an examination of the series of maps (Pls. III and IV), showing the density of population at different dates, settlement commenced at the eastern end of the State and progressed westward. The eastern portion of the State is, in ordinary years, well watered. On the other hand, only in occasional years has the western portion of the State a rainfall sufficient for the needs of agriculture. The rainfall shows a somewhat regular diminution from east to west across the State. Settlement, in its westward progress, encountered this deficiency of rainfall, but, encouraged by a succession of rainy seasons, it pushed forward in the early seventies much beyond the safe limit of agriculture; and this movement was efficiently aided and abetted by the railroad interests, which were concerned in the disposal of their lands. Then followed a succession of dry seasons, and the settlers in middle Kansas were literally starved out.

In the next decade, forgetting this bitter experience and encouraged by a second succession of wet seasons, settlement again advanced. Indeed, by 1886 or 1887 it had reached the western boundary of the State. The inevitable again happened in the form of a succession of dry seasons, and the western portion of the State was almost depopulated, the settlers suffering almost unheard-of hardships. In this second attempt to set the climate at naught the results were vastly more disastrous than in the first, inasmuch as the number of people concerned was many times as great. The entire State suffered seriously from the results. During the succeeding years nearly every county lost population, and the entire State, as is shown by the foregoing table, lost nearly one-seventh of its inhabitants. The rapid growth of the State between 1880 and 1887 was attended by a tremendous boom, land values rising enormously not only in the rural portions but in the cities, and the following reaction and depreciation in values were disastrous not only to farmers but to real-estate speculators.

The slight increase in population during the year 1896 indicates that the State is about to enter upon another period of prosperity.

The area of Kansas is 82,080 square miles. Speaking broadly, the surface is an undulating plain, rising gradually from an elevation of 700 or 800 feet at its eastern boundary to 3,000 or 4,000 feet at its western boundary. Considered in detail, most of the surface of the State bears out the above general characterization as an undulating plain, but in certain parts it has been cut by erosion, so that the above description does not strictly apply. On the east the Missouri River flows in a

broad bottom land, which is limited by bluffs 200 feet in height. The streams in the northeastern part of the State are also lined by bluffs of considerable height. In the southwest many of the branches of the Cimarron have cut courses which may almost be denominated gorges from their depth and abruptness, and in the central-western portion of the State considerable relief has been produced by the erosion of the streams.

South of the Arkansas, in the southwestern portion of the State, large areas are covered by drifted sand, forming irregular hills, the sand probably being blown from the bed of the Arkansas River.

The mean elevation of the State is estimated at 2,000 feet. Classifying the area in accordance with its elevation above sea level, gives the following results:

Elevation of Kansas above sea level.

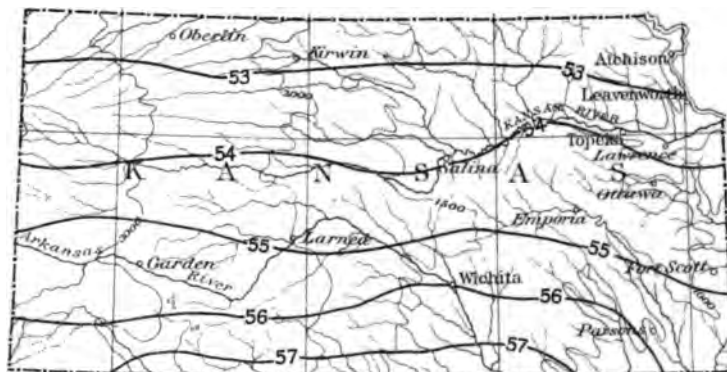
Feet.	Square miles.
700 to 1,000	8,300
1,000 to 1,500	25,900
1,500 to 2,000	13,900
2,000 to 3,000	19,600
3,000 to 4,000	14,200
Above 4,000	180

Thus much more than one-half of its area lies below an altitude of 2,000 feet.

As is seen from the map (Pl. V) showing distribution of rainfall over the State, this element of climate ranges in amount from about 40 inches near the southeastern corner of the State to about 15 inches along the western boundary. The line indicating the rainfall of 30 inches follows very closely the ninety-seventh meridian, while that indicating 20 inches enters the State on the south, at the meridian of 101 degrees, and leaves it on the north at the one hundred and second meridian. This map indicates the mean annual rainfall, i. e., the rainfall derived from long series of observations. Agriculture, however, depends not upon the mean rainfall for a term of years, but upon the rainfall of each year, and is therefore practically controlled by the minimum rainfall. In such a phenomenon as rainfall the range among different years is great, especially in a subhumid region, as is most of Kansas. The limit of safe agriculture is commonly placed at 20 inches of rainfall, and this limit in dry years has been found to traverse the State nearly midway between its eastern and western boundaries. In the western half of the State it is unsafe for the agriculturist to depend upon rainfall, for there disastrous droughts are likely to occur. Throughout that region the farmers are beginning to appreciate this fact and are commencing to provide against a deficient rainfall by canals and artesian wells.



MEAN ANNUAL RAINFALL.



MEAN ANNUAL TEMPERATURE.



The mean annual temperature of the State ranges from 52° to 58°, being least in the north and increasing southward. The prevailing winds are from the northwest.

Only a trifling proportion of the State is covered with timber, and it is only in the extreme eastern part that any areas are wooded, except in the form of narrow belts, closely confined to the streams. The trees are mainly broad-leaved species. Considerable progress has been made in the growth of lines of trees designed to serve as wind breaks. Even as far west as the middle portion of the State trees have been cultivated successfully for this purpose. The species selected are commonly cottonwoods, locusts, and poplars.

The slope of Kansas being in a general way from west to east, the course of the streams is necessarily in the same direction. The State is drained by westward tributaries of the Mississippi River, the Missouri, Arkansas, and their branches. The Missouri forms the northern part of the eastern boundary of the State. In its course along the border it receives the waters of numerous small tributaries, and at Kansas City there flows into it Kansas River, which, with its branches, Smoky Hill, Saline, Solomon, Republican, and Big Blue, drains the northern half of the State. Osage River or, as it is commonly called in Kansas, Marais des Cygnes, drains a small area in the eastern part, while the southeastern corner is drained by Neosho River to Arkansas River. Arkansas River itself, with its large branch, Cimarron River, drains most of the southern half of the State. Thus, so far as drainage areas are concerned, the State is divided into nearly equal parts between Arkansas and Missouri rivers.

The surface geology of Kansas is very simple, owing to the fact that the State, considered in a broad way, is a plain in which the rocks lie nearly horizontal. Each of the different formations represented covers a broad area. From east to west the formations become successively earlier in age. The eastern third of the State is covered by the Carboniferous formation. At the south boundary this extends westward to the Arkansas River, and its western limit trends a little east of north, crossing the northern boundary in longitude 96° 30'. At various places within this formation coal is mined, especially at Carbondale, Burlingame, and other points in that neighborhood. Succeeding this, near the southern border of the State, is a large area of Juratrias, extending from Oklahoma as far north as the latitude of Wichita.

North of the Juratrias is a great area of Cretaceous, while the western third of the State is occupied by the Neocene formation. The extent and limit of the various formations are shown graphically in the accompanying geologic map on Pl. VI.

The census of 1895 gave much information concerning the character of the population, classifying it by race, nativity, age, and sex. In that year the total number of inhabitants was 1,334,734, of which 693,928, or 52 per cent, were males, and 640,806, or 48 per cent, were females.

The white population numbered 1,285,749; negroes and mixed bloods

48,711, and Chinese and Indians 274. The percentage of whites was 96.33, and of colored 3.67.

The number of native-born inhabitants was 1,206,332, or 90.38 per cent of the population, a proportion much larger than in most of the other Northern States. The foreign-born numbered 128,402, or 9.62 per cent. Of the foreign born, 72,744 were males and 55,658 were females, showing a great disproportion in favor of males. The leading countries of nativity of the foreign-born were as follows:

Nativity of foreign-born inhabitants of Kansas.

Germany	39,527
Great Britain	19,903
Sweden, Norway, and Denmark	18,285
Ireland	11,800
Russia	10,740
Canada	9,283

Of the native born 44 per cent were born in Kansas, 9 per cent in Illinois, 7.5 per cent in Ohio, and smaller proportions in other States, as is shown in the following table:

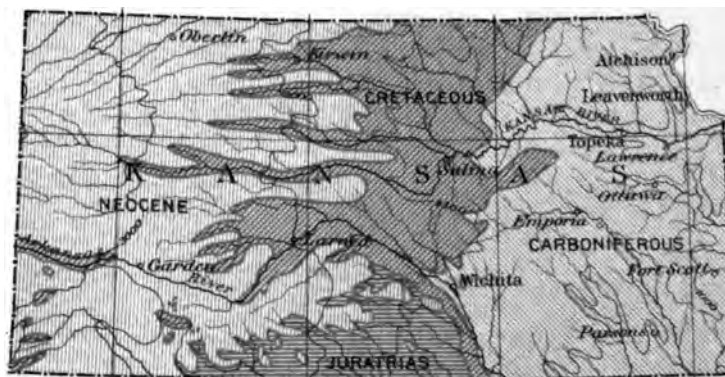
Native State of inhabitants of Kansas born in the United States.

Kansas	529,865
Illinois	111,945
Ohio	90,354
Missouri	78,748
Indiana	76,825
Iowa	54,199
Pennsylvania	48,357
Kentucky	30,423
New York	29,600
Nebraska	14,641
Tennessee	14,129
Wisconsin	11,280
Virginia	11,033
Michigan	10,327

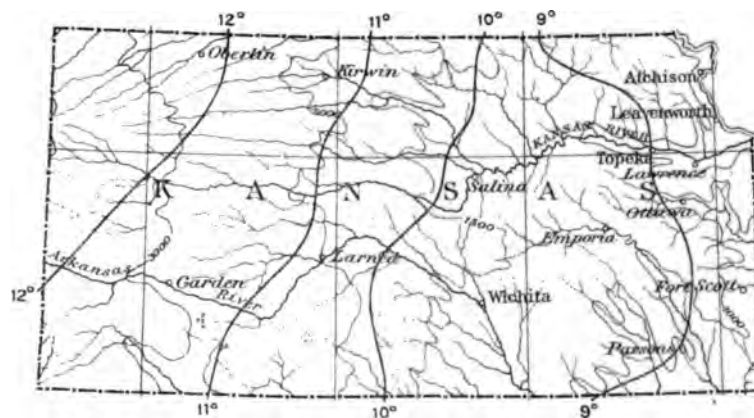
The population classified by age is as follows:

Classification of inhabitants by age.

Under 5 years	157,114
5 to 9	163,443
10 to 14	154,789
15 to 19	141,090
20 to 24	122,364
25 to 29	98,837
30 to 34	84,839
35 to 39	81,283
40 to 44	64,693
45 to 49	62,399
50 to 54	53,492
55 to 59	38,600
60 to 64	29,905
65 to 69	19,986
70 to 74	12,064
75 to 79	6,491
80 and over	3,871



GEOLOGY.



MAGNETIC DECLINATION.



In 1896 there were in Kansas 10 cities each having 8,000 inhabitants or more. These cities contained an aggregate population of 186,380, or 14 per cent of the total population. Ninety-five cities had each 1,000 inhabitants or more, aggregating 336,697, or more than one-fourth of the total population of the State.

The average number of persons in each family in 1890 was 4.77, which is slightly less than the average of the United States.

Of the total number of inhabitants more than one-half, or 51.25 per cent, were in 1890 engaged in gainful occupations. Of those thus engaged not less than 54.12 per cent were engaged in agriculture; in personal and professional service there were engaged 18.59 per cent; in trade and transportation, 12.43 per cent; in manufacturing, 12.76 per cent, and in mining, 2.10 per cent. The above figures show the preponderance of the agricultural interests in the State.

Of the total population 311,422, or about one-fourth, were church members. The church property was assessed at a valuation of \$6,896,037.

The school property had a value of \$9,781,425, and the number of schoolhouses in the State was 8,235.

The public libraries numbered 458, and contained 162,985 volumes. The number of newspapers published was 560.

Owing in part to the small proportion of the foreign-born element of the population and in part to the fact that Kansas maintains an admirable system of public schools, the percentage of illiteracy is very small. Only 42,907 of the people ten years of age and over, or 4 per cent, were in 1890 unable to read or write. In this respect the State is exceeded only by Iowa, Nebraska, and Wyoming.

The assessed valuation of the property of the people of the State in 1896 was \$321,157,487. This was distributed as follows among different classes of property:

Valuation of property in the State, by classes.

Lands	\$166, 623, 312
City lots.....	59, 043, 312
Personal property.....	36, 157, 224
Railroad property.....	59, 333, 166

From the above it is seen that the value of farms, which is the first item, exceeds that of all other classes of property.

The maximum valuation of all the property in the State was obtained in 1890, when it reached \$347,717,218.

Kansas is preeminently an agricultural State, more than half its people being engaged in that vocation. In 1890 the number of farms was 166,617. Out of a total area of the State of 82,080 square miles, the area in farms was 36,214,456 acres, or 56,500 square miles, being 69 per cent of the whole. In the proportion which the farm area bears to the total area of the State, Kansas is exceeded by few States. The average size of farms in 1890 was 181 acres, and this had been increasing since 1870.

The principal crops of the State are (primarily) corn and (secondarily) wheat. The amounts and values of the principal crops in 1896 are set forth in the following table:

Amounts and values of principal Kansas crops.

Crop.	Amount.	Value.
Winter wheat.....bushels..	27, 153, 635	\$13, 016, 229
Spring wheat.....do....	601, 523	240, 964
Corn.....do....	221, 419, 414	35, 633, 013
Oats.....do....	19, 314, 772	2, 706, 652
Rye.....do....	998, 897	283, 724
Barley.....do....	1, 169, 539	220, 861
Buckwheat.....do....	8, 401	4, 478
Irish potatoes.....do....	7, 778, 097	2, 138, 297
Sweet potatoes.....do....	292, 784	106, 769
Sorghum:		
For sirup or sugar.....gallons..	1, 415, 820	426, 648
For forage or seed.....do....		1, 705, 625
Castor beans.....bushels..	34, 701	27, 760
Cotton.....pounds..	44, 950	3, 146
Flax.....bushels..	1, 581, 397	948, 838
Hemp.....pounds..	42, 224	2, 111
Tobacco.....do....	169, 400	16, 940
Broom corn.....do....	16, 580, 400	268, 815
Millet and Hungarian.....tons..	691, 197	2, 073, 591
Milo maize.....do....	33, 698	87, 614
Kafir corn.....do....	1, 323, 172	3, 440, 274
Jerusalem corn.....do....	27, 599	71, 757
Timothy.....do....		
Clover.....do....		
Blue grass.....do....		
Alfalfa.....do....	571, 067	1, 998, 760
Orchard grass.....do....		
Other tame grasses.....do....		
Prairie grass, fenced.....do....	1, 592, 447	3, 981, 144
Total.....do....		69, 404, 017

The animal products of the State are only second in importance to those given above, which are directly agricultural. The meat product constitutes by far the largest item. These are set forth in the following table:

Animal products of the State.

Product.	Amount.	Value.
Wool clip pounds..	793, 963	\$71, 456
Cheese do.....	1, 141, 869	91, 349
Butter do.....	35, 007, 334	4, 225, 896
Animals slaughtered and sold for slaughter.....		36, 592, 057
Milk sold.....		620, 640
Poultry and eggs sold.....		3, 608, 815
Garden products marketed.....		760, 715
Horticultural products marketed.....		642, 362
Wine manufactured gallons..	115, 825	86, 868
Honey and beeswax pounds..	321, 692	48, 419
Wood marketed.....		137, 424
Total		46, 886, 004

The total annual value, therefore, of the agricultural and pastoral industries of the State amounted in 1896 to \$116,290,022.

Live stock owned in the State in 1896 is set forth in the following table:

Live stock owned in the State in 1896.

Class.	Number.	Value.
Horses	846, 841	\$21, 171, 025
Mules and asses	93, 448	2, 896, 888
Milch cows.....	515, 075	13, 134, 412
Other cattle.....	1, 305, 307	27, 411, 447
Sheep.....	182, 236	428, 254
Swine.....	1, 833, 091	8, 523, 873
Total		73, 565, 900

Kansas being, in the main, an agricultural State, its manufactures are comparatively limited. They are, however, increasing with great rapidity, as shown by the following statement. In 1880 the number of establishments was 2,803. This had increased in 1890 to 4,471. The number of employees in 1880 was but 12,062, but this had increased in 1890 to 32,843. In 1880 their wages were less than \$4,000,000, but in 1890 there was paid in wages \$16,328,485. In 1880 the value of manufactured products was but \$30,843,777; in 1890 it was \$110,219,805.

The principal articles of manufacture in 1890 were meat, the result of slaughtering and packing, the value of which was \$44,696,077; flour, \$17,420,475; printing and publishing, \$3,059,505; foundry and machine-shop products, \$2,756,825; and men's clothing, \$1,126,968.

As will be seen, the manufacturing industries of the State are closely related to its agricultural interests, the great majority of the products, in point of value, being those of its packing houses and its flouring and grist mills. Most of the slaughtering and meat packing is carried on in Kansas City. The flouring mills are widely scattered over the State, but are mainly in the cities of the eastern part, while other manufacturing industries are generally disseminated among the cities of the State. With the exception of Kansas City, it can scarcely be said that any of the cities have distinctive branches of manufacture.

The mining industries of the State are mainly in the eastern portion. Coal mining is carried on to a greater or less extent in most of the area underlain by the Carboniferous formation. The coal product of Kansas in the year 1896 was 2,884,801 short tons, valued at \$3,295,032. While coal mining is carried on in many of the counties in the Carboniferous areas of the State, its greatest development is in Crawford, Cherokee, Leavenworth, and Osage counties; indeed, of the total production of the State one-half came from Crawford County.

Lead and zinc are mined in the southeastern portion of the State. In the production of lead this area is relatively not of great importance, since fifteen-sixteenths of all the lead of the country is derived from the Rocky Mountain States and Territories, and only a relatively small proportion comes from eastern areas. But in the production of zinc this region is of importance. In the year 1896 it produced 20,759 tons of metallic zinc, out of a total production of the United States amounting to 81,499 tons, or more than one-fourth of the production of the country. The mines of zinc are, in the main, confined to the two southeasternmost counties of the State, Cherokee and Crawford.

Politically Kansas is divided into 105 counties, their boundaries being determined mainly by township or section lines. The counties are subdivided into civil townships, the number of townships in each county ranging from 5 in Wyandotte to 30 in Reno and Sumner. Altogether there are 1,519 townships in the State. The control of local affairs is divided between the township and county authorities.

In Kansas the only class of municipal incorporations is known as cities. Three classes of cities are chartered. Cities of the first and second class, i. e., those having a population of more than 2,000 each, are independent of the townships and form primary divisions of the county. The people in cities of the third class participate in the government of the townships in which they are located, and the municipality is subject to the township administration.

The State is well supplied with railroads, the total mileage being 9,025, an average of 1 mile of railroad to every 9 square miles of territory and to 148 inhabitants. The railroads of Kansas are in very few

hands, there being altogether but little more than a score of operating companies. Two of these—the Atchison, Topeka and Santa Fe, with 2,487 miles, and the Missouri Pacific, with 2,386 miles—operate more than half the mileage of the State. If to these be added the mileage of the Union Pacific (1,255) and of the Chicago, Rock Island and Pacific (1,124), four-fifths of the mileage of the State is accounted for as being operated by these four companies. The Missouri, Kansas and Texas operates 383 miles; the St. Louis and San Francisco, 435; the Chicago, Burlington and Quincy, 260; the St. Joseph and Grand Island, 138; the Kansas City, Fort Scott and Memphis, 257; and the Wichita and Western, 125; while other companies operate still smaller mileages.

Kansas is well equipped with good wagon roads, although few of them—indeed, scarcely any—have been built. The level surface insures easy grades and the character of the soil gives good dirt roads. Under a general State law a road is opened along each section line, wherever the necessity for it exists. The result is that nearly all the roads of the State are run either north and south or east and west along section lines, and except in the extreme western portion, where settlement is sparse, a road has been opened along every section line—that is, at regular intervals of a mile in either direction.

The following table gives a list of the counties of the State, with their areas, population in 1896, and the number of townships and cities in each:

Counties in Kansas, with their areas, population, townships, and cities.

County.	Area.	Population.	Townships.	Cities.
	<i>Sq. miles.</i>			
Allen	504	14,047	12	5
Anderson	576	14,310	14	5
Atchison	423	26,378	8	1
Barber	1,134	5,290	18	3
Barton	900	12,361	21	5
Bourbon	637	27,094	11	5
Brown	576	21,035	10	9
Butler	1,428	20,692	29	6
Chase	750	7,216	7	3
Chautauqua	651	10,826	12	4
Cherokee	589	33,928	14	5
Cheyenne	1,020	3,641	17	1
Clark	975	1,433	10	2
Clay	660	14,136	18	7
Cloud	720	15,549	18	5
Coffey	648	16,366	15	6
Comanche	795	1,269	10	1
Cowley	1,112	26,426	24	5

Counties in Kansas, with their areas, population, townships, and cities—Continued.

County.	Area.	Population.	Townships.	Cities.
	<i>Sq. miles.</i>			
Crawford	592	36,381	9	14
Decatur	900	7,152	23	2
Dickinson	851	19,911	24	6
Doniphan	379	15,181	8	7
Douglas	469	24,046	9	4
Edwards	612	3,147	9	1
Elk	651	10,356	10	6
Ellis	900	7,283	14	2
Ellsworth	720	8,686	13	3
Finney	1,296	3,505	7	1
Ford	1,080	5,003	14	2
Franklin	576	21,835	16	3
Geary	407	10,165	8	1
Gove	1,080	2,043	8	1
Graham	900	4,020	13	1
Grant	576	494	6	1
Gray	864	1,249	8	2
Greeley	780	851	3	2
Greenwood	1,155	14,827	15	4
Hamilton	972	1,529	8	3
Harper	810	9,235	19	5
Harvey	540	16,238	15	6
Haskell	576	580	9	0
Hodgeman	864	1,860	9	1
Jackson	658	16,497	13	5
Jefferson	568	17,619	13	6
Jewell	900	16,632	25	10
Johnson	480	17,282	10	4
Kearny	864	1,046	6	1
Kingman	864	9,854	23	2
Kiowa	720	1,923	13	4
Labette	649	27,568	16	6
Lane	720	1,666	9	1
Leavenworth	455	33,698	10	6
Lincoln	720	8,988	20	1
Linn	637	18,047	11	4
Logan	1,080	2,049	11	2
Lyon	858	24,251	11	4
Marion	954	20,451	24	4
Marshall	900	24,142	23	10
McPherson	900	20,295	25	8

Counties in Kansas, with their areas, population, townships, and cities—Continued.

County.	Area.	Population.	Townships.	Cities.
	<i>Sq. miles.</i>			
Meade	975	1, 651	10	2
Miami	588	20, 175	13	4
Mitchell	720	13, 267	20	3
Montgomery	648	23, 824	12	6
Morris	676	11, 227	14	6
Morton	729	320	6	0
Nemaha	720	20, 247	19	7
Neosho	576	18, 297	12	3
Ness	1, 080	3, 970	10	1
Norton	900	9, 008	22	3
Osage	720	24, 655	16	9
Osborne	900	10, 984	23	4
Ottawa	720	10, 342	20	4
Pawnee	756	4, 441	13	1
Phillips	900	11, 711	25	3
Pottawatomie	848	16, 966	23	7
Pratt	720	6, 126	17	1
Rawlins	1, 080	5, 079	20	1
Reno	1, 260	25, 598	30	4
Republic	720	15, 658	20	5
Rice	720	13, 650	16	4
Riley	617	12, 435	14	4
Rooks	900	7, 270	22	2
Rush	720	5, 067	15	3
Russell	900	7, 085	9	6
Saline	720	15, 572	19	2
Scott	720	1, 045	7	0
Sedgwick	1, 008	37, 836	27	9
Seward	648	688	6	0
Shawnee	558	47, 461	11	3
Sheridan	900	2, 789	13	1
Sherman	1, 080	4, 081	13	1
Smith	900	13, 280	25	4
Stafford	792	8, 052	19	3
Stanton	672	471	7	0
Stevens	729	688	10	0
Sumner	1, 188	22, 476	30	10
Thomas	1, 080	3, 456	10	1
Trego	900	2, 131	7	1
Wabaunsee	804	11, 893	13	2
Wallace	900	1, 600	8	0

Counties in Kansas, with their areas, population, townships, and cities—Continued.

County.	Area.	Population.	Townships.	Cities.
	<i>Sq. miles.</i>			
Washington.....	900	19,677	25	13
Wichita.....	720	1,431	8	0
Wilson.....	576	15,036	15	3
Woodson.....	504	9,659	10	3
Wyandotte.....	153	58,612	5	3

Of the entire area of the State—approximately 82,000 square miles—61,000 square miles have been surveyed and mapped by the United States Geological Survey, leaving 21,000 square miles unsurveyed. This unsurveyed portion lies in the western portion of the State, comprising most of that part lying west of the one hundredth meridian.

The scale of the published maps is 1:125000. In the eastern portion of the surveyed area the contour interval is 50 feet, while in the western portion it is 20 feet. The surveyed area is represented upon 72 sheets, 62 of which lie wholly within the State, while 10 of them project into adjoining States. The names and positions of the sheets are shown on the accompanying progress map (fig. 1):



FIG. 1.—Map of Kansas showing progress of topographic surveys.

GAZETTEER OF THE STATE OF KANSAS.

- Atlas sheets.
- Abbyville**; post village and station on Atchison, Topeka and Santa Fe Railway, in Westminster Township, Reno County; altitude, 1,659 feet Kingman.
- Abilene**; county seat of Dickinson County, and located in Grant Township; magnetic declination, 9° 45'; altitude, 1,154 feet. It is situated in the bottom lands of Smoky Hill River, on the north bank. It is entered by Missouri Pacific, Atchison, Topeka and Santa Fe, Union Pacific, and Chicago, Rock Island and Pacific railways; population, 3,377..... Abilene.
- Abilene**; left-hand branch of Smoky Hill River, in Dickinson County. { Abilene.
Clay Center.
- Achilles**; post village in Rawlins County.
- Achilles**; township in Rawlins County; area, 48 square miles; population, 203.
- Ackerland**; post village in Leavenworth County.
- Ada**; post village and station on Atchison, Topeka and Santa Fe Railway, in Fountain Township, Ottawa County Minneapolis.
- Adams**; creek, a right-hand branch of Vermilion River, in Pottawatomie County..... Wamego.
- Adams**; post village in Kingman County.
- Adams**; township in Nemaha County; area, 36 square miles; { Seneca.
population, 602. { Hiawatha.
- Adell**; township in Sheridan County; area, 54 square miles; population, 236.
- Admire**; post village and station on Missouri Pacific Railway, in Ivy Township, Lyon County; altitude, 1,230 feet..... Eskridge.
- Adrian**; post village in Jackson County.
- Adrian**; township in Jackson County; area, 36 square miles; population, 477.
- Ætna**; post village in Comanche County.
- Ætna**; township in Barber County; area, 129 square miles; { Medicine Lodge.
population, 78. { Coldwater.
- Ætna**; village in Ætna Township, Barber County Medicine Lodge.
- Afton**; creek, a branch of Clearwater Creek, and tributary to Ninnescah River, in Sedgwick County Cheney.
- Afton**; township in Sedgwick County; area, 36 square miles; population, 398 Cheney.
- Afton**; post village in Marshall County.
- Agency**; township in Osage County; area, 31 square miles; population, 1,495..... Burlingame.
- Agenda**; post village in Republic County; altitude, 1,414 feet.
- Agnes**; hamlet in Agnes City Township, Lyon County Eskridge.
- Agnes City**; township in Lyon County; area, 108 square miles; population, 1,589 Eskridge.

Atlas sheets.

- Agra**; post village and station on Chicago, Rock Island and Pacific Railway, in Plum Township, Phillips County; altitude, 1,852 feet..... Phillipsburg.
- Agricola**; post-office on Atchison, Topeka and Santa Fe Railway, in Rock Creek Township, Coffey County; altitude, 1,137 feet..... Burlington.
- Aiken**; station on Chicago, Rock Island and Pacific Railway, in Superior Township, McPherson County; altitude, 1,525 feet Hutchinson.
- Ainsworth**; post village in Greeley County.
- Air**; post village in Lyon County.
- Akron**; post village and railroad station in Fairview Township, Cowley County..... Wellington.
- Alamota**; township in Lane County; area, 80 square miles; population, 152.
- Alanthus**; post village in Gove County.
- Albano**; township in Stafford County; area, 36 square miles; population, 263.
- Albert**; post village and station on Atchison, Topeka and Santa Fe Railway, in Walnut Township, Barton County; altitude, 1,916 feet Larned.
- Albia**; post village in Washington County.
- Albion**; post village and station on Atchison, Topeka and Santa Fe Railway, in Odell Township, Harper County; altitude, 1,272 feet..... Caldwell.
- Albion**; township in Barton County; area, 36 square miles; population, 331 Russell.
- Albion**; township in Reno County; area, 36 square miles; population, 725. { Cheney.
Kingman.
- Albion**; township in Republic County; area, 36 square miles; population, 711..... Washington.
- Alburtis**; post village in Morris County.
- Alcona**; post village in Rooks County.
- Alcona**; township in Rooks County; area, 36 square miles; population, 140. { Hill.
Plainville.
- Alcyone**; post village in Sheridan County.
- Alden**; post village and station on Atchison, Topeka and Santa Fe Railway, in Valley Township, Rice County; altitude, 1,684 feet..... Lyons.
- Aldine**; township in Norton County; area, 36 square miles; population, 399..... Norton.
- Aleppo**; post village in Sedgwick County.
- Alexander**; post village and station on Atchison, Topeka and Santa Fe Railway, in Belle Prairie Township, Rush County; altitude, 2,079 feet Ness.
- Alexander**; township in Cheyenne County; area, 36 square miles; population, 136.
- Alexander**; township in Rush County; area, 42 square miles; population, 190. { Hays.
Ellis.
- Alexander Dry**; creek, a left-hand branch of Walnut Creek, in Ness County. { Ellis.
Ness City.
- Alexandria**; township in Leavenworth County; area, 48 square miles; population, 1,139..... Oskaloosa.

Atlas sheets.

Alfred; post village in Douglas County.**Aliceville**; city in Avon Township, Coffey County, on Missouri

Pacific Railway; population, 94 Burlington.

Alida; post village in Geary County; altitude, 1,105 feet.**Allegan**; post village in Rice County.

Allen; southeastern county; organized, 1855; area, 504 square miles; population, 14,047; county seat, Iola; mean magnetic declination, 9° 35'; rainfall, 37 inches; temperature, 54°. { Burlington.
Garnett.
Fredonia.
Iola.

The surface is an undulating plain, treeless except in stream valleys, and drained by Neosho River. The elevation ranges from 1,000 to 1,100 feet. It is an agricultural county, three-fifths of its area being under cultivation, mainly in corn. It is traversed by branches of the Missouri Pacific, Missouri, Kansas and Texas, and Atchison, Topeka and Santa Fe railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Carlyle	30	704
Cottage Grove	48	794
Deer Creek	36	567
Elm	48	892
Elsmore	64	1,721
Elsmore		219
Savonburg		180
Geneva	30	612
Humboldt	48	2,102
Humboldt		1,660
Iola	40	2,854
Iola		1,800
Logan		435
Marmaton	56	1,575
Moran		568
Osage	48	965
Salem	48	826

Allen; station on Missouri Pacific Railway, in Agnes City

Township, Lyon County; altitude, 1,314 feet Eskridge.

Allen; post-office in Ivy Township, Lyon County Eskridge.**Allen**; township in Jewell County; area, 36 square miles; population, 543. { Mankato.
Concordia.**Allen**; township in Kingman County; area, 36 square miles; population, 288. { Cheney.
Caldwell.**Allen**; right-hand branch of Mission Creek, in Wabaunsee County Eskridge.**Allen**; creek, a left-hand tributary to Chikaskia River, in Kingman County. { Anthony.
Kingman.**Allen**; creek, left-hand branch of Neosho River, in Lyon County. { Eskridge.
Emporia.**Allison**; post village in Decatur County.**Allison**; township in Decatur County; area, 36 square miles; population, 192.**Allodium**; township in Graham County; area, 67 square miles; population, 352.

Atlas sheets.

- Alma**; city on Chicago, Rock Island and Pacific and Atchison, Topeka and Santa Fe railways, in Alma Township, and county seat of Wabaunsee County; altitude, 1,060 feet; magnetic declination, $9^{\circ} 35'$; population, 1,045..... Wamego.
- Alma**; township in Wabaunsee County; area, 32 square miles; population, 1,617. { Wamego.
Eskridge.
- Almelo**; township in Norton County; area, 36 square miles; population, 170.
- Almena**; city in Almena Township, Norton County, on Burlington and Missouri River and Chicago, Rock Island and Pacific railways; altitude, 2,152 feet; population, 362..... Norton.
- Almena**; township in Norton County; area, 54 square miles; population, 1,109..... Norton.
- Alpha**; post village in McPherson County.
- Alta**; post village in Harvey County.
- Alta**; township in Harvey county; area, 36 square miles; population, 601 Hutchinson.
- Altamont**; city on St. Louis and San Francisco Railway, in Mount Pleasant Township, Labette County; altitude, 904 feet; population, 546..... Parsons.
- Altavista**; station on Chicago, Rock Island and Pacific Railway, in Washington Township, Wabaunsee County; altitude, 1,432 feet Eskridge.
- Alton**; city on Missouri Pacific Railway, in Sumner Township, Osborne County; altitude, 1,651 feet; population, 253..... Osborne.
- Altoona**; city in Cedar Township, Wilson County; population, 308 Fredonia.
- Altory**; township in Decatur County; area, 36 square miles; population, 268.
- Alum**; creek, a left-hand branch of Smoky Hill River, in Ellsworth County Ellsworth.
- Amador**; post village in Butler County.
- Amber**; post village in Barber County.
- Amber**; creek, a left-hand branch of Elm Creek, in Barber County Medicine Lodge.
- America**; post village in Red Vermilion Township, Nemaha County Seneca.
- Americus**; city on Missouri, Kansas and Texas Railway, in Americus Township, Lyon County; altitude, 1,154 feet; population, 448 Eskridge.
- Americus**; township in Lyon County; area, 88 square miles; population, 1,931. { Eskridge.
Emporia.
- Ames**; post village and station on Missouri Pacific Railway, in Shirley Township, Cloud County; altitude, 1,305 feet. Washington.
- Andale**; post village and station on Missouri Pacific Railway, in Sherman Township, Sedgwick County Cheney.
- Anderson**; eastern county; organized, 1855; area, 576 square miles; population, 14,310; county seat, Garnett; mean magnetic declination, $9^{\circ}.05'$; rainfall, 35 inches; temperature, 54° . { Burlington.
Garnett.

The surface is a plain, somewhat eroded by streams, and treeless except in stream valleys. The elevation ranges from 850 to 1,100 feet. It is an agricultural county, half its area being under cultivation, mainly in corn and flax. It is traversed by branches of the Missouri Pacific and Atchison, Topeka and Santa Fe Railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Indian Creek	48	706
Jackson	35	828
Lincoln	48	736
Lone Elm	42	956
Mouroe	31	3, 209
Garnett		2, 382
Ozark	39	1, 099
Colony		538
Putnam	33	575
Reeder	72	1, 182
Rich	54	1, 210
Kincaid		364
Union	30	529
Walker	15	709
Greeley		438
Washington	34	640
Welda	45	752
Westphalia	50	1, 179
Westphalia		331

- Andover**; post village and station on St. Louis and San Francisco Railway, in Bruno Township, Butler County; altitude, 1,350 feet Atlas sheets.
- Angelus**; post village in Sheridan County Wichita.
- Angola**; post village in Labette County.
- Annelly**; post village on Missouri Pacific Railway, in Richland Township, Harvey County; altitude, 1,389 feet Wichita.
- Anness**; post village and station on Atchison, Topeka and Santa Fe Railway, in Erie Township, Sedgwick County; altitude, 1,383 feet Caldwell.
- Anson**; post village and station on Missouri Pacific Railway, in Sumner Township, Sumner County; altitude, 1,302 feet..... Caldwell.
- Antelope**; post village and station on Chicago, Rock Island and Pacific Railway, in Clear Creek Township, Marion County. Cottonwood Falls.
- Antelope**; creek, a left-hand branch of Medicine Lodge River, in Barber County Medicine Lodge.
- Antelope**; creek, a right-hand branch of Arkansas River, in Barton County Great Bend.
- Antelope**; creek, a left-hand branch of Big Sandy Creek, in Clark County Ashland.
- Antelope**; creek, a left-hand branch of Salt Creek, in Mitchell County Beloit.
- Antelope**; creek, a left-hand tributary to Middle Shoofly Creek, in Sumner County Wellington.
- Antelope**; creek, a left-hand tributary to Arkansas River, in Sumner County Wellington.
- Antelope**; creek, a right-hand branch of Kansas River, in Wabaunsee County Wamego.
- Anthony**; city on Missouri Pacific and St. Louis and San Francisco railways, in Anthony Township, county seat of Harper County. Magnetic declination, 9° 35'; altitude, 1,337 feet. Population, 1,074 Anthony.
- Anthony**; township in Harper County; area, 56 square miles; population, 1,624. { Anthony.
Caldwell.
- Antioch**; post village in Miami County.
- Antrim**; post village in Stafford County.

Atlas sheets.

- Appanoose**; post village in Douglas County.
- Appanoose**; township in Franklin County; area, 30 square miles; population, 630. { Lawrence.
Burlingame.
- Appanoose**; creek, a left-hand branch of Osage River in Franklin and Douglas counties Lawrence.
- Appleton**; township in Clark County; area, 120 square miles; population, 214. { Ashland.
Meade.
- Appomattox**; city in Lincoln Township, Grant County; population, 34.
- Aral**; post village in Butler County.
- Arapahoe**; township in Haskell County; area, 64 square miles; population, 42 Garden.
- Arbor**; township in Rawlins County; area, 36 square miles; population, 104.
- Arcade**; township in Phillips County; area, 36 square miles; population, 442 Phillipsburg.
- Arcadia**; city on Kansas City, Fort Scott and Memphis Railway, in Lincoln Township, Crawford County; altitude, 815 feet; population, 632 Fort Scott.
- Argentine**; city on Atchison, Topeka and Santa Fe Railway, in Shawnee Township, Wyandotte County; altitude, 750 feet; population, 5,960 Kansas City.
- Argonia**; city on Missouri Pacific and Atchison, Topeka and Santa Fe railways, in Dixon Township, Sumner County; altitude, 1,254 feet; population, 326 Caldwell.
- Argonia**; creek, a left-hand branch of Chicaskia River, in Sumner County Caldwell.
- Argyle**; creek, a right-hand branch of Ninnescah River, in Sumner County Wellington.
- Arickarie**; river, a branch of Republican River, heading in eastern Colorado, crossing the northwestern corner of Kansas, and joining Republican River in Nebraska.
- Arion**; township in Cloud County; area, 36 square miles; population, 549. { Minneapolis.
Concordia.
- Arispie**; post village in Pottawatomie County.
- Arkalon**; post village in Seward County; altitude, 2,615 feet.
- Arkansas**; city in Creswell Township, Cowley County; altitude, 1,073 feet. It is situated on the left bank of Arkansas River, at the head of navigation. It is entered by the Atchison, Topeka and Santa Fe and the St. Louis and San Francisco railways Wellington.
- Arkansas River**; a large western branch of the Missouri River. It heads in the Rocky Mountains of central Colorado, flows south and southeast, and joins the Mississippi in eastern Arkansas, after a course of 1,410 miles. It crosses the west boundary of Kansas near the thirty-eighth parallel and traverses the State, with a general direction a little south of east, although with large bends, and crosses the southern boundary near the ninety-seventh meridian, nearly south of Winfield. It is navigable from its mouth to the southern boundary of Kansas, a distance of 679 miles, at high water. It frequently runs dry in late summer in its course across Kansas.
- Arlington**; city on Chicago, Rock Island and Pacific Railway, in Arlington Township, Reno County; altitude, 1,599 feet; population, 303 Kingman.

- Atlas sheets.
- Arlington**; township in Reno County; area, 36 square miles; population, 620..... Kingman.
- Arma**; post village in Crawford County.
- Arrington**; post village in Atchison County; altitude, 929 feet. Topeka.
- Arvonia**; township in Osage County; area, 48 square miles; population, 657. { Burlingame.
Burlington.
- Ash**; creek, a branch of Big Mule Creek, in Barber County ... Medicine Lodge.
- Ash**; creek, a right-hand branch of Smoky Hill River, in Ellsworth County..... Ellsworth.
- Ash**; creek, a left-hand branch of Arkansas River, in Pawnee County. { Larned.
Great Bend.
- Ash**; creek, a left-hand branch of North Fork of Solomon River, in Phillips County Phillipsburg.
- Ash**; creek, a right-hand branch of Mill Creek, in Washington County Washington.
- Asherville**; post village and station on Union Pacific Railway, in Asherville Township, Mitchell County; altitude, 1,345 feet..... Minneapolis.
- Asherville**; township in Mitchell County; area, 36 square miles; population 651. { Beloit.
Minneapolis.
- Ashland**; post village and station on Atchison, Topeka and Santa Fe Railway and county seat of Clark County; altitude, 1,951 feet..... Ashland.
- Ashland**; township in Riley County; area, 32 square miles; population, 273..... Junction City.
- Ash Rock**; township in Rooks County; area, 36 square miles; population, 387. { Phillipsburg.
Plainville.
- Ashton**; city in Baker Township, Crawford County; population, 488.
- Ashton**; post village in Sumner County.
- Ash Valley**; post village in Pawnee County.
- Ash Valley**; township in Pawnee County; area, 36 square miles; population, 166 Larned.
- Assaria**; city on Missouri Pacific Railway, in Smoky Hill Township, Saline County; altitude, 1,285 feet; population, 180.. Salina.
- Atchison**; city and county seat of Atchison County; magnetic declination, 8° 15'; the fifth city in population in the State, situated on the right bank of Missouri River. It is a railroad center of importance, being entered by branches of the Atchison, Topeka and Santa Fe, Missouri Pacific, Burlington and Missouri River, and Chicago, Rock Island and Pacific railways. Altitude, Missouri River, low water, 1883, 765 feet; high water, 1881, 789 feet; Union Depot, 795 feet; population, 15,501..... Atchison.
- Atchison**; northeast county; organized 1855; area, 423 square miles; population, 26,378; county seat, Atchison; Mean magnetic declination, 8° 45'; rainfall, 35 inches; temperature, 52°. { Atchison.
Hiawatha.
Topeka.
Oskaloosa.

The surface is a rolling plain, somewhat eroded by streams, especially on the east, near Missouri River, which forms the eastern boundary. It is treeless, except in the valleys. The elevation ranges from 800 to 1,200 feet. Excepting the county seat, which contains more than half the population of the county, it is an agricultural county, two-thirds of its area being cultivated, mainly in corn. It is traversed by several railways, including branches of the Atchison, Topeka and Santa Fe, and Missouri Pacific systems.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Benton.....	60	964
Center.....	54	1,060
Graashopper.....	54	1,706
Kapioma.....	60	1,175
Lancaster.....	54	1,535
Mount Pleasant.....	48	1,517
Shannon.....	56	1,797
Walnut.....	35	1,123
Atchison.....		15,501

- Athelstane**; post village in Clay County. Atlas sheets.
- Athelstane**; township in Clay County; area, 36 square miles; population, 606. Clay Center.
- Athens**; post village in Jewell County.
- Athens**; township in Jewell County; area, 36 square miles; population, 455. Mankato.
- Athol**; post village and station on Chicago, Rock Island and Pacific Railway, in Lane Township, Smith County; altitude, 1,782 feet. Smith Center.
- Atlanta**; post village and railway station in Omnia Township, Cowley County. Burden.
- Atlanta**; township in Rice County; area, 48 square miles; population, 2,172. Lyons.
- Attica**; city on Atchison, Topeka and Santa Fe Railway, in Ruella Township, Harper County; altitude, 1,453 feet; population, 269. Anthony.
- Attica**; township in Sedgwick County; area, 36 square miles; population, 799. { Cheney.
Wichita.
- Atwater**; hamlet in Cimarron Township, Meade County. Meade.
- Atwood**; county seat of Rawlins County, situated in Atwood Township; population, 493.
- Atwood**; township in Rawlins County; area, 56 square miles; population, 704.
- Aubry**; township in Johnson County; area, 50 square miles; population, 1,187. Olathe.
- Auburn**; post village in Auburn Township, Shawnee County. Burlingame.
- Auburn**; township in Shawnee County; area, 56 square miles; population, 974. Burlingame.
- Augusta**; city on Atchison, Topeka and Santa Fe, and St. Louis and San Francisco railways, in Augusta Township, Butler County; altitude, 1,221 feet; population, 964. Eldorado.
- Augusta**; township in Butler County; area, 36 square miles; population, 1,549. { Eldorado.
Wichita.
- Augustine**; township in Logan County; area, 72 square miles; population, 108.
- Aulne**; post village and station on Chicago, Rock Island and Pacific Railway, in Wilson Township, Marion County; altitude, 1,404 feet. Newton.
- Aurora**; station on Atchison, Topeka and Santa Fe Railway, in Olivet Township, Osage County. Burlington.
- Aurora**; post village and station on Atchison, Topeka and Santa Fe Railway, in Cloud County; altitude, 1,478 feet. Minneapolis.
- Aurora**; township in Cloud County; area, 36 square miles; population, 596. { Minneapolis.
Clay Center.
- Austin**; post village in Neosho County.
- Avery**; post village in Reno County.

	Atlas sheets.
Avery ; creek, a left-hand tributary to Whitewater River, in Butler County. (Called "Diagonal Creek" on Wichita sheet.)	{ Wichita. Eldorado.
Avilla ; city in Avilla Township, Comanche County; population, 34	Coldwater.
Avilla ; township in Comanche County; area, 124 square miles; population, 107	Coldwater.
Avoca ; post village in Jackson County.	
Avon ; township in Coffey County; area, 30 square miles; population, 746	Burlington.
Avon ; township in Sumner County; area, 36 square miles; population, 359	Wellington.
Avon ; creek, a left-hand branch of Slate Creek, in Sumner County	Wellington.
Avonia ; post-office and station on Atchison, Topeka and Santa Fe Railway, in Barclay Township, Osage County	Burlingame.
Axtell ; city on St. Joseph and Grand Island Railway, in Murray Township, Marshall County; altitude, 1,360 feet; population, 594	Seneca.
Bachelor ; township in Greenwood County; area, 60 square miles; population, 564	Eureka.
Bachelor ; creek, a left-hand branch of Hickory Creek, in Elk County	Independence.
Bachelor ; creek, a right-hand fork of Walnut Creek, in Greenwood County	Eureka.
Bachelor ; creek, a left-hand tributary to Sandy Creek, in Harper County	Anthony.
Bachelor ; creek, a right-hand branch of Labette Creek, in Labette County	Parsons.
Bacon ; post village in Lincoln County.	
Bacon ; creek, a left-hand tributary to Spillman Creek, in Lincoln and Mitchell counties	Beloit.
Badger ; post village in Lyon County.	
Badger ; creek, a small left-hand tributary to Neosho River, in Coffey and Lyon counties.	{ Emporia. Burlington.
Badger ; creek, a left-hand branch of Walnut River, in Cowley County	Burden.
Badger ; creek, a left-hand branch of North Branch Otter Creek, in Greenwood County	Eureka.
Badger ; creek, a right-hand branch of Slate Creek, in Sumner County	Wellington.
Baehr ; creek, a left-hand branch of Bluff Creek, in Harper County	Caldwell.
Bagley ; post village in Montgomery County.	
Baileyville ; post village on St. Joseph and Grand Island Railway, in Marion Township, Nemaha County; altitude, 1,321 feet	Seneca.
Baker ; station on Missouri Pacific Railway, in Mission Township, Brown County; altitude, 1,177 feet; population, 202 ..	Hiawatha.
Baker ; township in Crawford County; area, 72 square miles; population, 16,070	Joplin.
Baker ; township in Gove County; area, 126 square miles; population, 292.	
Baker ; creek, a left-hand tributary to South Fork Cottonwood River, in Chase County	Cottonwood Falls.
Baker ; creek, a left-hand tributary to Whitewater River, in Butler County. (Known as "Gillion Creek" on Wichita sheet.)	{ Wichita. Eldorado.

	Atlas sheets.
Bala ; hamlet in Bala Township, Riley County	Junction City.
Bala ; township in Riley County; area, 42 square miles; population, 1,048	Junction City.
Balderson ; township in Marshall County; area, 36 square miles; population, 705.	Marysville. Seneca.
Baldwin ; city on Atchison, Topeka and Santa Fe Railway, in Palmyra Township, Douglas County; altitude, 1,057 feet; population, 1,178.....	Lawrence.
Ballard Falls ; post village in Little Blue Township, Washington County	Marysville.
Balls ; creek, a left-hand tributary to Nemaha River, in Nemaha County	Seneca.
Bancroft ; post village in Nemaha County.	
Banks ; hamlet in Mount Ayr Township, Osborne County.....	Osborne.
Banner ; station on Missouri Pacific Railway, in Banner Township, Dickinson County; altitude, 1,345 feet	Abilene.
Banner ; post village in Trego County.	
Banner ; township in Dickinson County; area, 36 square miles; population, 577	Abilene.
Banner ; township in Harper County; area, 36 square miles; population, 1,502.....	Anthony.
Banner ; township in Pratt County; area, 36 square miles; population, 228.	Pratt. Kinsley.
Banner ; township in Rush County; area, 54 square miles; population, 354	Larned.
Banner ; township in Smith County; area, 36 square miles; population, 737	Smith Center.
Bannock ; post village in Edwards County.	
Barber ; southern county; organized 1873; area, 1,134 square miles; population, 5,290; county seat, Medicine Lodge; mean magnetic declination, 10° 10'; rainfall, 26 inches; temperature, 56°.	Medicine Lodge. Coldwater.

The surface is a broken, treeless plain, drained by Medicine Lodge River and several smaller streams. The elevation ranges from 1,300 to 1,800 feet. It is sparsely settled, and but one-fourth of its area is under cultivation. It is deficient in railways, being barely touched by branches of the Atchison, Topeka and Santa Fe system.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Etna	129	78
Cedar	36	272
Deerhead	64	81
Eagle	113	172
Elm Mills	60	164
Elwood	105	238
Hazelton	36	530
Hazelton		193
Kiowa	37	508
Kiowa		385
Lake City	42	137
McAdoo	36	134
Medicine Lodge	120	1,246
Medicine Lodge		709
Mingona	60	279
Moore	45	300
Nippawalla	54	255
Sharon	72	434
Sun City	48	116
Turkey Creek	48	170
Valley	36	176

- Barclay**; post-office and station on Atchison, Topeka and Santa Fe Railway, in Barclay Township, Osage County; altitude, 1,175 feet Atlas sheets.
- Barclay**; township in Osage County; area, 48 square miles; population, 788 Burlingame.
- Barnard**; post village and station on Atchison, Topeka and Santa Fe Railway, in Scott Township, Lincoln County; altitude, 1,322 feet Burlingame.
- Barnard**; station on Kansas City, Fort Scott and Gulf Railway, in Valley Township, Linn County; altitude, 797 feet Beloit.
- Barnes**; city on Missouri Pacific Railway, in Barnes Township, Washington County; altitude, 1,328 feet; population, 354.. Mound City.
- Barnes**; township in Washington County; area, 36 square miles; population, 922 Marysville.
- Barnesville**; post village in Bourbon County.
- Barrett**; post village on Missouri Pacific Railway, in Vermilion Township, Marshall County; altitude, 1,128 feet Seneca.
- Barrett**; township in Thomas County; area, 108 square miles; population, 178.
- Barry**; post village in Greenwood County.
- Bartlett**; post village in Labette County; altitude, 888 feet.
- Barton**; central county; organized 1872; area, 900 square miles; population, 12,361; county seat, Great Bend; mean magnetic declination, 9° 55'; rainfall, 25 inches; temperature, 54° Great Bend.
Larned
Hays.
Russell.

The surface is a treeless plain, broken by stream erosion in the northern part and sandy south of Arkansas River, which crosses the county from west to east. The elevation ranges from 1,700 to 2,000 feet. More than half its area is under cultivation, largely in wheat. It is traversed by branches of the Atchison, Topeka and Santa Fe, and Missouri Pacific railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Albion	36	331
Beaver	36	360
Buffalo	36	350
Cheyenne	72	550
Clarence	36	360
Cleveland	36	382
Comanche	65	752
Eureka	36	291
Fairview	36	303
Grant	36	321
Great Bend	45	2,542
Great Bend		2,158
Homestead	72	911
Hoisington		535
Independent	36	623
Claffin		201
Lakin	67	1,508
Ellinwood		164
Liberty	36	425
Logan	36	458
Pawnee Rock	36	557
Pawnee Rock		129
South Bend	36	326
Union	36	208
Walnut	36	488
Wheatland	36	315

Atlas sheets.

- Beaver**; township in Decatur County; area, 36 square miles; population, 263.
- Beaver**; township in Lincoln County; area, 36 square miles; population, 403 Beloit.
- Beaver**; township in Phillips County; area, 36 square miles; population, 395 Norton.
- Beaver**; township in Rawlins County; area, 40 square miles; population, 165.
- Beaver**; township in Republic County; area, 36 square miles; population, 546 Concordia.
- Beaver**; township in Scott County; area, 120 square miles; population, 141.
- Beaver**; township in Smith County; area, 36 square miles; population, 368 Smith Center.
- Beaver**; township in Wichita County; area, 72 square miles; population, 187.
- Beaver**; post village in Sheridan County.
- Beaver**; creek, a branch of Republican River, heading in eastern Colorado and flowing northeast to its mouth in southern Nebraska.
- Beaver**; creek, a left-hand branch of Arkansas River, in Cowley County Burden.
- Beaver**; creek, a right-hand branch of Bluff Creek, in Harper County Anthony.
- Beaver**; creek, a left-hand branch of Sand Creek, in Harvey County Newton.
- Beaver**; creek, a right-hand branch of Saline River, in Lincoln County Beloit.
- Beaver**; creek, a right-hand branch of Republican River, in Republic County Concordia.
- Beaver**; creek, a right-hand branch of Smoky Hill River, in Russell County Russell.
- Beaver**; creek, a left-hand branch of North Fork Solomon River, in Smith County Smith Center.
- Beaver**; creek, a left-hand branch of Slate Creek, in Sumner County Wellington.
- Beaver**; creek, a left-hand branch of Chikaskia River, in Sumner County Caldwell.
- Beaver**; creek, a right-hand branch of Little Blue River, in Washington County Marysville.
- Bedford**; station on Missouri Pacific Railway, in Cooper Township, Stafford County; altitude, 1,852 feet Great Bend.
- Bee**; creek, a left-hand branch of Little Cana River, in Montgomery and Chautauqua counties Independence.
- Beeler**; post village in Ness County; altitude, 2,490 feet.
- Bell**; township in Reno County; area, 36 square miles; population, 387 Kingman.
- Bell**; branch, small tributary to Big Bull Creek, in Miami County Olathe.
- Bell**; creek, a small left-hand branch of Kansas River, in Wyandotte County, 5 miles in length Kansas City.
- Bellaire**; post village and station on Chicago, Rock Island and Pacific Railway, in Blaine Township, Smith County; altitude, 1,862 feet Smith Center.
- Bellefonte**; station on Atchison, Topeka and Santa Fe Railway, in Wheatland Township, Ford County; altitude, 2,354 feet Spearville.

Atlas sheets.

- Belle Plaine**; city on Atchison, Topeka and Santa Fe and Missouri Pacific railways, in Belle Plaine Township, Sumner County; altitude, 1,218 feet. Wellington.
- Belle Plaine**; township in Norton County; area, 36 square miles; population, 202 Norton.
- Belle Plaine**; township in Sumner County; area, 43 square miles; population, 1,185 Wellington.
- Belle Prairie**; township in Rush County; area, 54 square miles; population, 167. Ness.
(Larned.
- Belleville**; city in Belleville Township and county seat of Republic County, situated on Chicago, Rock Island and Pacific, St. Joseph and Grand Island, and Northern Pacific railways; altitude, 1,512 feet; population, 1,320 Concordia.
- Belleville**; township in Republic County; area, 36 square miles; population, 1,974 Concordia.
- Belleville**; township in Chautauqua County; area, 56 square miles; population, 1,275 Sedan.
- Bellgrade**; station on Missouri Pacific Railway, in Spring Creek Township, Coffey County Burlington.
- Belmont**; post village and station on Missouri Pacific Railway, in Eagle Township, Kingman County; altitude, 1,582 feet. Cheney.
- Belmont**; township in Kingman County; area, 36 square miles; population, 395. Kingman.
(Anthony.
- Belmont**; township in Phillips County; area, 36 square miles; population, 362. Phillipsburg.
(Norton.
- Belmont**; township in Rooks County; area, 36 square miles; population, 301 Plainville.
- Belmont**; township in Woodson County; area, 48 square miles; population, 656 Fredonia.
- Beloit**; city in Beloit Township and county seat of Mitchell County, situated on Union Pacific and Missouri Pacific railways; altitude, 1,382 feet; population, 2,108 Beloit.
- Beloit**; township in Mitchell County; area, 36 square miles; population, 3,026 Beloit.
- Belpre**; post village and station on Atchison, Topeka and Santa Fe Railway, in Wayne Township, Edwards County; altitude, 2,090 feet Kinsley.
- Belpre**; township in Edwards County; area, 54 square miles; population, 246
- Belvidere**; post village and station on Atchison, Topeka and Santa Fe Railway, in Glick Township, Kiowa County; altitude, 1,841 feet Coldwater.
- Belvoir**; post village and station on Union Pacific Railway, in Clinton Township, Douglas County Lawrence.
- Belvue**; post village and station on Union Pacific Railway, in Belvue Township, Pottawatomie County; altitude, 959 feet. Wamego.
- Belvue**; township in Pottawatomie County; area, 39 square miles; population, 749 Wamego.
- Beman**; post village in Warren Township, Morris County. Eskridge.
- Bemis**; creek, a left-hand tributary to Walnut River, in Butler County Eldorado.
- Bendena**; post village in Doniphan County; altitude, 1,109 feet.
- Benedict**; post village in Wilson County; altitude, 863 feet.
- Benkelman**; township in Cheyenne County; area, 72 square miles; population, 353.

Atlas sheets.

- Bennett**; township in Kingman County; area, 36 square miles; population, 581 Caldwell.
- Bennington**; city on Union Pacific Railway, in Bennington Township, Ottawa County; altitude, 1,122 feet; population 344 Minneapolis.
- Bennington**; township in Ottawa County; area, 36 square miles; population, 775. { Minneapolis.
Salina.
- Bentley**; post village in Sedgwick County; altitude, 1,385 feet.
- Benton**; post village and station on Missouri Pacific Railway, in Benton Township, Butler County; altitude, 1,375 feet... Wichita.
- Benton**; township in Atchison County; area, 60 square miles; population, 964. { Atchison.
Oskaloosa.
- Benton**; township in Butler County; area, 36 square miles; population, 755 Wichita.
- Benton**; township in Hodgeman County; area, 36 square miles; population, 63.
- Berbeck**; post-office in Union Township, Barton County..... Russell.
- Berlin**; post village in Mill Creek Township, Bourbon County. Fort Scott.
- Berlin**; township in Harper County; area, 34 square miles; population, 218.
- Bern**; post village in Nemaha County; altitude, 1,285 feet.
- Bernal**; post village in Reno County.
- Bernard**; branch, a right-hand branch of Verdigris River, in Greenwood County..... Emporia.
- Berry**; creek, a left-hand branch of Middle Cana Creek, in Chautauqua County..... Sedan.
- Berryton**; post village in Shawnee County.
- Berwick**; post village in Nemaha County; altitude, 1,163 feet.
- Berwick**; township in Nemaha County; area, 36 square miles; population, 882.
- Bethany**; township in Osborne County; area, 36 square miles; population, 527. { Osborne.
Smith Center.
- Bethel**; post-office and station on Kansas City, Wichita and Northwestern Railway, in Quindara Township, Wyandotte County; altitude, 1,013 feet Kansas City.
- Beulah**; post village and station on Kansas City, Fort Scott and Memphis Railway, in Sheridan Township, Crawford County; altitude, 979 feet..... Joplin.
- Beverley**; post village and station on Union Pacific Railway, in Colorado Township, Lincoln County; altitude, 1,326 feet. Minneapolis.
- Big**; creek, a right-hand branch of Neosho River, in Coffey County. Divides 5 miles above mouth into North and South Big creeks Burlington.
- Big**; creek, a left-hand branch of Neosho River, in Neosho and Allen counties Iola.
- Big**; creek, a left-hand branch of Smoky Hill River, in Ellis, Russell, and Trego counties. { Hays.
Russell.
Ellis.
- Big**; creek, a left-hand branch of Deer Creek, in Phillips County Phillipsburg.
- Big Bend**; station on Missouri Pacific Railway, in Belmont Township, Phillips County; altitude, 1,851 feet..... Phillipsburg.
- Big Bend**; township in Republic County; area, 36 square miles; population, 831 Concordia.

Atlas sheets.

- Belle Plaine**; city on Atchison, Topeka and Santa Fe and Missouri Pacific railways, in Belle Plaine Township, Sumner County; altitude, 1,218 feet. Wellington.
- Belle Plaine**; township in Norton County; area, 36 square miles; population, 202 Norton.
- Belle Plaine**; township in Sumner County; area, 43 square miles; population, 1,185 Wellington.
- Belle Prairie**; township in Rush County; area, 54 square miles; population, 167. Ness.
Larned.
- Belleville**; city in Belleville Township and county seat of Republic County, situated on Chicago, Rock Island and Pacific, St. Joseph and Grand Island, and Northern Pacific railways; altitude, 1,512 feet; population, 1,320 Concordia.
- Belleville**; township in Republic County; area, 36 square miles; population, 1,974 Concordia.
- Belleville**; township in Chautauqua County; area, 56 square miles; population, 1,275 Sedan.
- Bellgrade**; station on Missouri Pacific Railway, in Spring Creek Township, Coffey County Burlington.
- Belmont**; post village and station on Missouri Pacific Railway, in Eagle Township, Kingman County; altitude, 1,582 feet. Cheney.
- Belmont**; township in Kingman County; area, 36 square miles; population, 395. Kingman.
Anthony.
- Belmont**; township in Phillips County; area, 36 square miles; population, 362. Phillipsburg.
Norton.
- Belmont**; township in Rooks County; area, 36 square miles; population, 301 Plainville.
- Belmont**; township in Woodson County; area, 48 square miles; population, 656 Fredonia.
- Beloit**; city in Beloit Township and county seat of Mitchell County, situated on Union Pacific and Missouri Pacific railways; altitude, 1,382 feet; population, 2,108 Beloit.
- Beloit**; township in Mitchell County; area, 36 square miles; population, 3,026 Beloit.
- Belpre**; post village and station on Atchison, Topeka and Santa Fe Railway, in Wayne Township, Edwards County; altitude, 2,090 feet. Kinsley.
- Belpre**; township in Edwards County; area, 54 square miles; population, 246
- Belvidere**; post village and station on Atchison, Topeka and Santa Fe Railway, in Glick Township, Kiowa County; altitude, 1,841 feet. Coldwater.
- Belvoir**; post village and station on Union Pacific Railway, in Clinton Township, Douglas County Lawrence.
- Belvue**; post village and station on Union Pacific Railway, in Belvue Township, Pottawatomie County; altitude, 959 feet. Wamego.
- Belvue**; township in Pottawatomie County; area, 39 square miles; population, 749 Wamego.
- Beman**; post village in Warren Township, Morris County. Eskridge.
- Bemis**; creek, a left-hand tributary to Walnut River, in Butler County Eldorado.
- Bendena**; post village in Doniphan County; altitude, 1,109 feet.
- Benedict**; post village in Wilson County; altitude, 863 feet.
- Benkelman**; township in Cheyenne County; area, 72 square miles; population, 333.

Atlas sheets.

- Bennett**; township in Kingman County; area, 36 square miles; population, 581 Caldwell.
- Bennington**; city on Union Pacific Railway, in Bennington Township, Ottawa County; altitude, 1,122 feet; population 344 Minneapolis.
- Bennington**; township in Ottawa County; area, 36 square miles; population, 775. { Minneapolis.
Salina.
- Bentley**; post village in Sedgwick County; altitude, 1,385 feet.
- Benton**; post village and station on Missouri Pacific Railway, in Benton Township, Butler County; altitude, 1,375 feet... Wichita.
- Benton**; township in Atchison County; area, 60 square miles; population, 964. { Atchison.
Oskaloosa.
- Benton**; township in Butler County; area, 36 square miles; population, 755 Wichita.
- Benton**; township in Hodgeman County; area, 36 square miles; population, 63.
- Berbeck**; post-office in Union Township, Barton County..... Russell.
- Berlin**; post village in Mill Creek Township, Bourbon County. Fort Scott.
- Berlin**; township in Harper County; area, 34 square miles; population, 218.
- Bern**; post village in Nemaha County; altitude, 1,285 feet.
- Bernal**; post village in Reno County.
- Bernard**; branch, a right-hand branch of Verdigris River, in Greenwood County..... Emporia.
- Berry**; creek, a left-hand branch of Middle Cana Creek, in Chautauqua County..... Sedan.
- Berryton**; post village in Shawnee County.
- Berwick**; post village in Nemaha County; altitude, 1,163 feet.
- Berwick**; township in Nemaha County; area, 36 square miles; population, 882.
- Bethany**; township in Osborne County; area, 36 square miles; population, 527. { Osborne.
Smith Center.
- Bethel**; post-office and station on Kansas City, Wichita and Northwestern Railway, in Quindara Township, Wyandotte County; altitude, 1,013 feet Kansas City.
- Beulah**; post village and station on Kansas City, Fort Scott and Memphis Railway, in Sheridan Township, Crawford County; altitude, 979 feet..... Joplin.
- Beverley**; post village and station on Union Pacific Railway, in Colorado Township, Lincoln County; altitude, 1,326 feet. Minneapolis.
- Big**; creek, a right-hand branch of Neosho River, in Coffey County. Divides 5 miles above mouth into North and South Big creeks Burlington.
- Big**; creek, a left-hand branch of Neosho River, in Neosho and Allen counties Iola.
- Big**; creek, a left-hand branch of Smoky Hill River, in Ellis, Russell, and Trego counties. { Hays.
Russell.
Ellis.
- Big**; creek, a left-hand branch of Deer Creek, in Phillips County Phillipsburg.
- Big Bend**; station on Missouri Pacific Railway, in Belmont Township, Phillips County; altitude, 1,851 feet..... Phillipsburg.
- Big Bend**; township in Republic County; area, 36 square miles; population, 831 Concordia.

Atlas sheets.

- Big Blue**; river, a right-hand branch of Missouri River, heading in Johnson County and flowing northeast into Missouri. Olathe.
- Big Blue**; river, a left-hand branch of Kansas River. It heads in southeastern Nebraska and flows southward, forming boundary line between Riley and Pottawatomie counties. { Marysville.
Junction City.
- Big Bull**; creek, a left-hand branch of Osage River, in Miami County; length, 30 miles..... Olathe.
- Big Cana**; creek, a right-hand branch of Caney Creek, in Chautauqua County. Flows south from Sedan sheet into Indian Territory..... Sedan.
- Big Cedar**; creek, a left-hand branch of Verdigris River, in Wilson County..... Fredonia.
- Big Coon**; creek, a right-hand branch of Arkansas River, in Pawnee County..... Larned.
- Big Creek**; township in Ellis County; area, 120 square miles; population, 1,215..... Hays.
- Big Creek**; township in Neosho County; area, 48 square miles; population, 997..... Iola.
- Big Creek**; township in Russell County; area, 72 square miles; population, 522. { Russell.
{ Hays.
- Big Eddy**; creek, a small branch of Missouri River, in Wyandotte County, 2 miles long..... Kansas City.
- Bigelow**; post-office and station on Missouri Pacific Railway, in Bigelow Township, Marshall County; altitude, 1,117 feet. Marysville.
- Big Hill**; creek, a left-hand tributary to Verdigris River, in Montgomery and Labette counties..... Independence.
- Big John**; creek, a left-hand branch of Neosho River, in Morris County..... Eskridge.
- Big Mule**; creek, a left-hand branch of Salt Fork of Arkansas River, in Barber County..... Medicine Lodge.
- Big Sandy**; creek, a left-hand branch of Salt Fork of Arkansas River, in Barber County..... Medicine Lodge.
- Big Sandy**; creek, a left-hand branch of Cimarron River, in Clark County..... Ashland.
- Big Slough**; creek, a right-hand branch of Turkey Creek, in McPherson County..... Hutchinson.
- Big Slough**; a right-hand branch of Arkansas River, in Sedgewick County. { Wichita.
{ Cheney.
- Big Soldier**; creek, a large left-hand branch of Kansas River, in Shawnee and Jackson counties; length, 50 miles. { Topeka.
{ Hiawatha.
- Big Spring**; post village in Douglas County.
- Big Spring**; creek, a left-hand branch of Chikaskia River, in Kingman County..... Caldwell.
- Big Stranger**; creek, a left-hand branch of Kansas River, in Leavenworth and Atchison counties; length, 60 miles. { Oskaloosa.
{ Atchison.
- Big Sugar**; creek, a right-hand branch of Osage River, in Linn and Anderson counties. { Mound City.
{ Garnett.
- Big Timber**; township of Rush County; area, 48 square miles; population, 425..... Hays.
- Big Timber**; creek, a left-hand branch of North Fork Solomon River, in Norton County..... Norton.
- Big Timber**; creek, a right-hand branch of Smoky Hill River, in Rush and Ness counties. { Hays.
{ Ellis.
- Big Walnut**; creek, a left-hand branch of Rock Creek, in Neosho and Crawford counties..... Iola.

Atlas sheets.

- Bird**; city in Bird City Township, Cheyenne County; altitude 3,449 feet; population, 122.
- Bird City**; township in Cheyenne County; area, 36 square miles; population, 186.
- Birley**; post-office in Bazaar Township, Chase County Cottonwood Falls.
- Birmingham**; post village in Jackson County; altitude, 1,099 feet.
- Bison**; post village and station on Missouri Pacific Railway, in Lone Star Township, Rush County; altitude, 2,012 feet... Hays.
- Bissell**; creek, a left-hand branch of Deer Creek, in Phillips County Phillipsburg.
- Bitter**; creek, a right-hand branch of Medicine Lodge River, in Barber County Medicine Lodge.
- Bitter**; creek, a left-hand tributary to Arkansas River, in Sumner County Wellington.
- Bitter**; creek, a left-hand tributary to Chikaskia River, in Sumner County Wellington.
- Bittercreek**; post village in Sumner County.
- Black Crook**; creek, a left-hand branch of Walnut River, in Cowley County Burden.
- Black Kettle**; creek, a left-hand branch of Little Arkansas River, in Harvey County Hutchinson.
- Black Marsh**; lake, between Rice and Reno counties..... Lyons.
- Blacksmith**; creek, a right-hand branch of Kansas River, in Shawnee County Topeka.
- Blackstone**; post village and station on St. Louis and San Francisco Railway, in Bluff Township, Sumner County; altitude, 1,199 feet Caldwell.
- Black Stub**; gulch in Waring Township, Ness County Ellis.
- Black Vermillion**; river, a left-hand branch of Big Blue River, in Marshall and Nemaha counties. Marysville.
(Seneca.
- Blackwolf**; post-office and station on Union Pacific Railway, in Columbia Township, Ellsworth County; altitude, 1,567 feet..... Ellsworth.
- Blaine**; post village and station on Union Pacific Railway, in Clear Creek Township, Pottawatomie County; altitude, 1,505 feet Wamego.
- Blaine**; township in Clay County; area, 44 square miles; population, 650 Clay Center.
- Blaine**; township in Harper County; area, 54 square miles; population, 262 Anthony.
- Blaine**; township in Lane County; area, 80 square miles; population, 227.
- Blaine**; township in Marion County; area, 36 square miles; population, 423.
- Blaine**; township in Ottawa County; area, 36 square miles; population, 388 Minneapolis.
- Blaine**; township in Smith County; area, 36 square miles; population, 623 Smith Center.
- Blakely**; township in Geary County; area, 36 square miles; population, 302.
- Blakeman**; post village in Rawlins County; altitude, 2,894 feet.
- Blaze Fork**; left-hand branch of Little Arkansas River, in McPherson, Reno, and Harvey counties..... Hutchinson.
- Block**; post-office in Valley Township, Miami County Olathe.

	Atlas sheets.
Blood ; river in Barton County; sinking in a marsh or lake in Cheyenne Bottoms.	{ Hays. Russell. Great Bend.
Blood ; creek, a right-hand branch of Smoky Hill River in Ellsworth County	Ellsworth.
Bloom ; station on Chicago, Rock Island and Pacific Railway, in Bloom Township, Ford County; altitude, 2,590 feet.....	Ashland.
Bloom ; township in Clay County; area, 47 square miles; population, 703	Clay Center.
Bloom ; township in Ford County: area, 72 square miles: population, 44.	{ Spearville. Ashland.
Bloom ; township in Osborne County: area, 54 square miles; population, 552.	{ Osborne. Beloit.
Bloomfield ; township in Mitchell County; area, 36 square miles; population, 530.....	Beloit.
Bloomfield ; township in Sheridan County; area, 36 square miles; population, 124.	
Bloomington ; village in Clinton Township, Douglas County ..	Lawrence.
Bloomington ; post village and station on Missouri Pacific Railway, in Tilden Township, Osborne County; altitude, 1,601 feet.....	Osborne.
Bloomington ; township in Butler County; area, 36 square miles; population, 443.....	Eldorado.
Blue ; township in Pottawatomie County; area, 45 square miles; population, 643.	{ Junction City. Wamego.
Blue Hill ; post village in Hayes Township, Mitchell County...	Beloit.
Blue Hill ; township in Mitchell County; area, 36 square miles; population, 291.....	Beloit.
Blue Hills ; hills in Custer, Blue Hills, Pittsburg, and Hayes townships, Mitchell County; altitude, 1,880 feet	Beloit.
Blue Mound ; hill in Wakarusa Township, Douglas County....	Lawrence.
Blue Mound ; city on Kansas City, Fort Scott and Memphis Railway, in Blue Mound Township, Linn County; population, 748.	{ Mound City. Garnett.
Blue Mound ; township in Linn County; area, 64 square miles; population, 1,684.	{ Mound City. Garnett.
Blue Rapids ; city on Union Pacific and Missouri Pacific railways, in Blue Rapids City Township, Marshall County; also situated on Big Blue River; altitude, 1,175 feet; population, 1,189.....	Marysville.
Blue Rapids ; township in Marshall County; area, 54 square miles; population, 1,185.....	Marysville.
Blue Rapids City ; township in Marshall County; area, 36 square miles; population, 1,795.....	Marysville.
Blue Stem ; creek, a left-hand tributary to Chikaskia River, in Kingman County.	{ Anthony. Kingman.
Blue Stone ; hamlet in Fairview Township, Russell County...	Osborne.
Blue Valley ; township in Pottawatomie County; area, 46 square miles; population, 811.	{ Marysville. Junction City.
Bluff ; city on St. Louis and San Francisco Railway, in Stohrville Township, Harper County; population, 143; altitude, 1,197 feet	Caldwell.

	Atlas sheets.
Bluff ; township in Sumner County; area, 54 square miles; population, 469	Caldwell.
Bluff ; creek, a left-hand branch of Cimarron River, in Clark and Comanche counties; length, 55 miles.	Coldwater.
	Ashland.
Bluff ; creek, a right-hand branch of Smoky Hill River, in Ellsworth County.	Ellsworth.
Bluff ; creek, a left-hand branch of Rock Creek, in Lyon and Morris counties	Eskridge.
Bluff ; creek, a left-hand branch of Onion Creek, in Montgomery County	Independence.
Bluff ; creek, a right-hand branch of Big Blue River, in Pottawatomie County	Marysville.
Bodarc ; post village in Butler County.	
Bodaville ; post village in Riley County.	
Bogue ; post village and station on Union Pacific Railway, in Wild Horse Township, Graham County; altitude, 2,039 feet.	Hill.
Boiscourt ; post village in Linn County.	
Bolton ; township in Cowley County; area, 51 square miles; population, 1,073.	Wellington.
	Burden.
Bolton ; post village in Montgomery County; altitude, 818 feet.	
Bonaccord ; post village in Dickinson County.	
Bonaville ; township in McPherson County; area, 36 square miles; population, 279.	Salina.
	Abilene.
Bond ; post village in Douglas County.	
Bone Spring ; post village in Reno County.	
Bonita ; post-office and station on Kansas City, Fort Scott and Gulf Railway, Olathe Township, Johnson County	Olathe.
Bonner ; post-office and station on Union Pacific Railway, in Delaware Township, Wyandotte County; altitude, 786 feet.	Kansas City.
Boone ; township in Haskell County; area, 64 square miles; population, 60.	
Booth ; post village in Reno County.	
Booth ; creek, a left-hand branch of Walnut Creek, in Barton and Rush counties.	Hays.
	Great Bend.
Borders ; township in Stanton County; area, 126 square miles; population, 25.	
Borin ; post village in Decatur County.	
Bosna ; post village in Trego County.	
Boughton ; creek, a left-hand branch of Deer Creek, in Phillips County	Phillipsburg.
Bourbon ; southeastern county; organized in 1855; area, 637 square miles; population, 27,094; county seat, Fort Scott; mean magnetic declination, 9° 15'; rainfall, 38 inches; temperature, 54°.	Garnett.
	Mound City.
	Iola.
	Fort Scott.
The surface is an undulating plain, with little timber, except in the stream valleys, and is drained by Marmaton River and its tributaries. The elevation ranges from 750 to 1,100 feet. It is largely an agricultural county, one-half its area being under cultivation, mainly in corn. It is traversed by branches of the Missouri, Kansas and Texas, the Kansas City, Fort Scott and Memphis, and St. Louis, Wichita and Western railways.	

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Drywood.....	45	1,647
Franklin.....	72	1,348
Freedom.....	44	1,329
Fulton.....		490
Marion.....	100	2,388
Uniontown.....		(1895) 244
Bronson.....		(1895) 324
Marmaton.....	56	1,279
Mill Creek.....	56	1,113
Osage.....	48	1,117
Pawnee.....	48	1,097
Hiattville.....		(1895) 146
Scott.....	75	2,216
Timberhill.....	36	991
Walnut.....	60	896
Fort Scott.....		11,673

Atlas sheets.

- Bow**; creek, a right-hand branch of North Fork Solomon River, in Graham, Rooks, and Phillips counties. } Phillipsburg.
- Bow Creek**; post village in Phillips County.
- Bow Creek**; township in Phillips County; area, 36 square miles; population, 311 Phillipsburg.
- Bow Creek**; township in Rooks County; area, 36 square miles; population, 239. } Norton.
Phillipsburg.
Hill.
Plainville.
- Bow Creek**; township in Sheridan County; area, 72 square miles; population, 226.
- Bower**; creek, a left-hand branch of Osage River, in Osage County Burlingame.
- Bowie**; small left-hand branch of Grasshopper Creek, in Jefferson County Oskaloosa.
- Bowling**; post-office and station on Union Pacific Railway, in High Prairie Township, Leavenworth County Kansas City.
- Bowman**; branch, a small left-hand tributary to Neosho River, in Coffey County Burlington.
- Bowman**; creek, a left-hand branch of Mill Creek, in Washington County Washington.
- Boxelder**; creek, a right-hand branch of South Fork Solomon River, in Rooks County Plainville.
- Boyle**; post village in Jefferson County; altitude, 1,149 feet.
- Bradford**; post village in Wabaunsee County.
- Brainerd**; station on Missouri Pacific Railway, in Milton Township, Butler County; altitude, 1,381 feet; population, 83 ... Wichita.
- Brandy**; lake, in Valley Township, Reno County Hutchinson.
- Brantford**; post village in Brantford Township, Washington County Washington.
- Brantford**; township in Washington County; area, 36 square miles; population, 715 Washington.
- Brazilton**; post village and station on St. Louis and San Francisco Railway, in Walnut Township, Crawford County; altitude, 1,017 feet Fort Scott.
- Bremen**; post-office and station on St. Joseph and Grand Island Railway, in Herkimer Township, Marshall County Marysville.
- Brenham**; township in Kiowa County; area, 42 square miles; population, 180.

Atlas sheets.

- Brenham**; station on Chicago, Rock Island and Pacific and Atchison, Topeka and Santa Fe railways, in Center Township, Kiowa County; altitude, 2,194 feet..... Kinsley.
- Brenner**; post village in Doniphan County; altitude, 972 feet.
- Brewster**; post village in Thomas County; altitude, 3,411 feet.
- Bridgeport**; post village and station on Union Pacific and Missouri Pacific railways, in Smoky Hill Township, Saline County; altitude, 1,395 feet..... Salina.
- Briggs**; post village in Geary County.
- Bristow**; post-office in Independence Township, Osborne County Osborne
- Broderick**; post village in Pottawatomie County.
- Bronson**; city on Missouri Pacific Railway, in Marion Township, Bourbon County; altitude, 1,079 feet; population, 324 (1895) Iola.
- Brookdale**; township in Rush County; area, 42 square miles; population, 279 Hays.
..... Larned.
- Brook Luta**; left-hand tributary to Cottonwood River, in Marion County Newton County.
- Brooks**; post-office and station on St. Louis and San Francisco Railway, in Newark Township, Wilson County; altitude, 877 feet Independence.
- Brookville**; city on Union Pacific Railway, in Spring Creek Township, Saline County; altitude, 1,353 feet; population, 345 Salina.
- Broughton**; post village in Clay County; altitude, 1,179 feet.
- Brown**; northeastern county; organized in 1855; area, 576 square miles; population, 21,035; county seat, Hiawatha; mean magnetic declination, 9° 15'; rainfall, 35 inches; temperature, 52° } Atchison.
..... Hiawatha.

The surface is a plain somewhat eroded by streams and treeless except in the valleys. The elevation ranges from 900 to 1,100 feet. It is an agricultural county, more than two-thirds of its area being cultivated, mainly in corn, wheat, and oats. It is traversed by branches of the Missouri Pacific, St. Joseph and Grand Island, and Chicago, Rock Island and Pacific railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles</i>	
Hamlin	42	1,136
Hamlin		176
Reserve		103
Hiawatha	63	5,082
Hiawatha		3,313
Irving	54	993
Mission	90	5,607
Baker		202
Willis		193
Horton		3,202
Morrill	42	1,436
Morrill		362
Padonia	42	936
Powhatan	90	1,471
Robinson	45	1,374
Robinson		456
Walnut	63	1,646
Washington	45	1,354
Everest		489

Atlas sheets.

Brown ; township in Clark County; area, 120 square miles; population, 79	Ashland.
Brown ; township in Edwards County; area, 155 square miles; population, 433	Kinsley.
Brown ; creek, a left-hand branch of Solomon River, in Mitchell County.	{ Beloit. Mankato.
Brownell ; post village and station on Missouri Pacific Railway, Waring Township, Ness County; altitude, 2,414 feet.....	Ellis.
Browns Creek ; township in Jewell County; area, 36 square miles; population 533	Mankato.
Browns Grove ; township in Pawnee County; area, 72 square miles; population, 251.	{ Larned. Ness.
Brownsville ; post village in Chautauqua County.	
Bruno ; township in Butler County; area, 36 square miles; population, 631	Wichita.
Bruno ; creek, a left-hand branch of Cottonwood River, in Marion and Chase counties	Cottonwood Falls.
Brush ; creek, a right-hand branch of Spring River, in Cherokee County	Joplin.
Brush ; creek, a branch of Missouri River, in Doniphan County; length, 5 miles	Atchison.
Brush ; creek, a right-hand tributary to South Fork, Solomon River, in Graham County	Hill.
Brush ; creek, a small left-hand branch of Grasshopper Creek, in Jefferson County	Oskaloosa.
Brush ; creek, a right-hand branch of Saline River, in Lincoln County.	{ Ellsworth. Beloit.
Brush ; creek, a left-hand branch of Rock Creek, in Pottawatomie County	Wamego.
Brush ; creek, a right-hand tributary to Verdigris River, in Wilson County	Fredonia.
Bryant ; township in Graham County; area, 90 square miles; population, 290	Hill.
Buck ; creek, a left-hand tributary to Dry Wood Creek in Bourbon County	Fort Scott.
Buck ; creek, a left-hand branch of Kansas River in Jefferson County	Oskaloosa.
Buckeye ; creek, a left-hand branch of Cottonwood River, in Chase County	Emporia.
Buckeye ; creek, a right-hand branch of Cottonwood River; in Chase County	Cottonwood Falls.
Buckeye ; township in Dickinson County; area, 36 square miles; population, 539.	{ Abilene. Clay Center.
Buckeye ; township in Ellis County; area, 72 square miles; population, 280.	
Buckeye ; township in Ottawa County; area, 36 square miles; population, 357.	{ Minneapolis. Clay Center. Salina. Abilene.
Bucklin ; post village and station on Chicago, Rock Island and Pacific Railway, in Bucklin Township, Ford County; altitude, 2,418 feet.....	Spearville.
Bucklin ; township in Ford County; area, 36 square miles; population, 171.	{ Spearville. Ashland.

	Atlas sheets.
Buckner ; creek, a fork of Pawnee River, in Hodgeman County.	{ Dodge. Ness City.
Bucyrus ; post village in Miami County.	
Buel ; post village in Mitchell County.	
Buffalo ; post-office in Clifton Township, Wilson County	Fredonia.
Buffalo ; township in Jewell County; area, 40 square miles; population, 1,223	Mankato.
Buffalo ; township in Barton County; area, 36 square miles; population, 350	Great Bend.
Buffalo ; township in Cloud County; area, 44 square miles; population, 634	Concordia.
Buffalo ; creek, a right-hand branch of Republican River, in Jewell and Republic counties.	{ Mankato. Concordia.
Buffalo ; creek, a left-hand branch of Smoky Hill River, in Ellsworth County	Ellsworth.
Buffalo ; creek, a left-hand branch of Verdigris River, in Wilson and Woodson counties	Fredonia.
Buhler ; post village in Reno County; altitude, 1,474 feet.	
Bull ; creek, a right-hand branch of Cow Creek, in Rice and Reno counties	Lyons.
Bullard ; creek, a right-hand branch of Big Sandy Creek, in Clark County	Ashland.
Bullfoot ; creek, a right-hand branch of Saline River, in Lincoln County.	{ Ellsworth. Beloit.
Bullington ; creek, a left-hand branch of Grouse Creek, in Cowley County	Burden.
Bunker Hill ; city on Union Pacific Railway, in Center Township, Russell County; altitude, 1,861 feet; population, 123.	Russell.
Burden ; city and station on Atchison, Topeka and Santa Fe Railway, in Silver Creek Township, Cowley County; altitude, 1,375 feet; population, 452	Burden.
Burdett ; post village and station on Atkinson, Topeka and Santa Fe Railway, in Keysville Township, Pawnee County; altitude, 2,120 feet	Ness.
Burdgeville ; hamlet in Colfax Township, Wilson County	Fredonia.
Burdick ; post village in Morris County; altitude, 1,459 feet.	
Burlingame ; city on Atchison, Topeka and Santa Fe Railway, in Burlingame Township, Osage County; altitude, 1,049 feet; population, 1,536	Burlingame.
Burlingame ; township in Osage County; area, 72 square miles; population, 3,051	Burlingame.
Burlington ; county seat of Coffey County, in Burlington Township. It is situated on the right bank of Neosho River, and is entered by the Atchison, Topeka and Santa Fe and Missouri Pacific railways; magnetic declination, 9° 15'; altitude, 1,033 feet; population, 2,474	Burlington.
Burlington ; township in Coffey County; area, 35 square miles; population, 3,226	Burlington.
Burlington Junction ; station on Atchison, Topeka and Santa Fe Railway, in Lincoln Township, Franklin County; altitude, 932 feet	Lawrence.
Burns ; post village and station on Atchison, Topeka and Santa Fe Railway, in Milton Township, Marion County; altitude, 1,497 feet	Cottonwood Falls.

Atlas sheets.

- Burnt**; creek, a left-hand branch of Spring Creek, in Greenwood County Eureka.
- Burntwood**; post village in Rawlins County.
- Burntwood**; township in Rawlins County; area, 108 square miles; population, 353.
- Burroak**; city and station on Missouri Pacific Railway, in Burroak Township, Jewell County; altitude, 1,662 feet; population, 571 Mankato.
- Burroak**; township in Doniphan County; area, 34 square miles; population, 954 Atchison.
- Burroak**; township in Jewell County; area, 36 square miles; population, 1,306 Mankato.
- Burrton**; city and station on Atchison, Topeka and Santa Fe and St. Louis and San Francisco railways, in Burrton Township, Harvey County; altitude, 1,457 feet; population, 517. Hutchinson.
- Burrton**; township in Harvey County; area, 36 square miles; population, 961 Hutchinson.
- Burt**; post-office in Liberty Township, Woodson County Fredonia.
- Burys**; creek, a right-hand branch of Wakarusa Creek, in Osage and Shawnee counties Burlingame.
- Bushy**; post village in Elk County.
- Bushong**; post village in Lyon County; altitude, 1,377 feet.
- Bushton**; post village and station on Missouri Pacific Railway, in Farmer Township, Rice County; altitude, 1,760 feet Ellsworth.
- Butler**; township in Kiowa County; area, 36 square miles; population, 107.
- Butler**; southern county; organized, 1855; area, 1,428 square miles; population, 20,692; county seat, Eldorado; magnetic declination, 9° 15'; rainfall, 30 inches; temperature, 55°. { Eldorado.
Cottonwood Falls.
Wichita.
Newton.
Wellington.
Burden.

The surface is a plain, rising gradually eastward to a broad summit, 1,600 feet high in the eastern part, from an elevation of 1,200 feet on Walnut Creek, in the southwestern part. It is timbered only in the stream valleys and is drained by Walnut Creek and its tributaries. About half its area is under cultivation, mainly in corn. It is traversed by branches of the Atchison, Topeka and Santa Fe, the St. Louis and San Francisco, and the Union Pacific railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Angusta	36	1,549
Angusta		964
Benton	36	755
Bloomington	36	443
Bruno	36	631
Chelsea	105	582
Clay	36	245
Clifford	42	531
Douglass	36	1,023
Douglass		585
Eldorado	58	4,063
Eldorado		3,528
Fairmount	36	598

Township and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Fairview.....	36	362
Glencoe.....	60	607
Hickory.....	60	431
Lincoln.....	100	312
Little Walnut.....	36	789
Leon.....		449
Logan.....	36	308
Milton.....	36	914
Whitewater.....		209
Brainerd.....		83
Murdock.....	36	633
Pleasant.....	36	528
Plum Grove.....	36	508
Prospect.....	87	662
Richland.....	36	622
Rock Creek.....	36	394
Rosalie.....	60	522
Spring.....	36	626
Sycamore.....	112	489
Towanda.....	36	647
Union.....	60	475
Walnut.....	36	453

- Buxton**; post village in Wilson County; altitude, 975 feet. Atlas sheets.
- Byers**; post village in Cimarron Township, Meade County..... Meade.
- Byron**; township in Stafford County; area, 36 square miles; population, 351..... Great Bend.
- Cabbell**; post village in Logan County.
- Cadmus**; post village in Linn County.
- Cahola**; post village in Chase County.
- Cain**; city on Missouri Pacific Railway, in Farmer Township, Rice County; altitude, 1,779 feet; population, 83 (1890).
- Cairo**; post village and station on Atchison, Topeka and Santa Fe Railway, in Valley Township, Pratt County; altitude, 1,730 feet..... Pratt.
- Caldwell**; city on Chicago, Rock Island and Pacific, Atchison, Topeka and Santa Fe, and St. Louis and San Francisco railways, in Caldwell Township, Sumner County; altitude, 1,111 feet; population, 991..... Caldwell.
- Caldwell**; township in Sumner County; area, 54 square miles; population, 1,504..... Caldwell.
- Cale**; station on St. Louis and San Francisco Railway, in Bolton Township, Cowley County..... Wellington.
- Calhoun**; township in Cheyenne County; area, 72 square miles; population, 253.
- California**; township in Coffey County; area, 28 square miles; population, 538..... Burlington.
- Calista**; station on Wichita and Western Railway, in Union Township, Kingman County; altitude, 1,605 feet..... Kingman.
- Calorific**; station on Kansas City, Wichita and Northwestern Railway, in Quindaro Township, Wyandotte County; altitude, 1,015 feet..... Kansas City.
- Calvert**; post village in Norton County; altitude, 2,193 feet.
- Calvin**; township in Jewell County; area, 32 square miles; population, 417..... Mankato.

Cambria ; township in Saline County; area, 36 square miles; population, 662.	{ Abilene. Salina.
Cambridge ; post village in Cowley County; altitude, 1,245 feet.	
Cameron ; post village in Harper County.	
Campbell ; post village in Washington County.	
Camp ; creek, a left-hand branch of Sandy Creek, in Harper County	Anthony.
Camp ; creek, a left-hand branch of Verdigris River, in Lyon County	Emporia.
Camp ; creek, a right-hand branch of Rock Creek, in Pottawatomie County	Wamego.
Camp ; creek, a left-hand branch of Republican River in Republic County	Concordia.
Camp ; creek, a right-hand branch of Mill Creek, in Washington County	Washington.
Camp ; creek, a left-hand branch of Coon Creek, in Washington County	Marysville.
Canada ; post village and station on Atchison, Topeka and Santa Fe Railway, in Gale Township, Marion County.....	Newton.
Canada ; township in Labette County; area, 40 square miles; population, 627.	{ Parsons. Independence.
Canaville ; township in Neosho County; area, 48 square miles; population, 1,032.	{ Iola. Fredonia.
Caney ; city on Missouri Pacific Railway, in Caney Township, Montgomery County; altitude, 738 feet; population, 936 ...	Independence.
Caney ; township in Montgomery County; area, 72 square miles; population, 2,032	Independence.
Caneyville ; township in Chautauqua County; area, 56 square miles; population, 850.	{ Sedan. Burden.
Canning ; creek, a right-hand branch of Neosho River, in Morris County	Parkerville.
Canton ; city on Chicago, Rock Island and Pacific, and Atchison, Topeka and Santa Fe railways, in Canton Township, McPherson County; altitude, 1,591 feet; population, 361 ...	Newton.
Canton ; township in Kingman County; area, 36 square miles; population, 302.	{ Caldwell. Anthony.
Canton ; township in McPherson County; area, 36 square miles; population, 957	Newton.
Canville ; creek, a left-hand branch of Neosho River, in Neosho County	Iola.
Capioma ; post village in Nemaha County.	
Capioma ; township in Nemaha County; area, 36 square miles; population, 790	Hiawatha.
Captains ; creek, a right-hand branch of Kansas River, in Douglas and Johnson counties	Lawrence.
Carbondale ; city on Atchison, Topeka and Santa Fe and Union Pacific railways, in Ridgeway Township, Osage County; altitude, 1,078 feet; population, 772	Burlingame.
Carl ; post village in Jackson County.	
Carlton ; city on Missouri Pacific Railway, in Holland Township, Dickinson County; population, 121 (1890).....	Abilene.
Carlyle ; post village in Allen County; altitude, 989 feet.	
Carlyle ; township in Allen County; area, 30 square miles; population, 704.	{ Iola. Garnett.

Atlas sheets.

Carmen ; post village in Gray County.	
Carmi ; township in Pratt County; area, 36 square miles; population, 331	Pratt.
Carnahan ; creek, a left-hand branch of Big Blue River, in Pottawatomie County	Junction City.
Carneiro ; post-office and station on Union Pacific Railway, in Garfield Township, Ellsworth County; altitude, 1,550 feet.	Ellsworth.
Carneiro ; township in Ellsworth County; area, 36 square miles	Ellsworth.
Carr Creek ; township in Mitchell County; area, 36 square miles; population, 419	Beloit.
Carrol ; post village in Greenwood County.	
Carson ; post village in Walnut Township, Brown County	Hiawatha.
Carwood ; post village in Wichita County.	
Cary ; creek, a left-hand branch of Lyons Creek, in Dickinson County	Parkerville.
Cassady ; village on Atchison, Topeka and Santa Fe Railway, in Farmington Township, Stafford County	Pratt.
Castle ; township in McPherson County; area, 36 square miles; population, 544	Hutchinson.
Castle Rock ; creek, a small left-hand branch of Smoky Hill River, in Logan and Gove counties.	
Castleton ; post village in Castleton Township, Reno County..	Cheney.
Castleton ; township in Reno County; area, 54 square miles; population, 383.	{ Cheney. Kingman.
Catalpa ; post village in Gove County.	
Catharine ; post village in Catharine Township, Ellis County..	Hays.
Catharine ; township in Ellis County; area, 44 square miles; population, 463.	{ Hays. Plainville.
Catlin ; township in Marion County; area, 36 square miles; population, 682	Newton.
Cato ; post village in Crawford County.	
Cavalry ; creek, a left-hand branch of Bluff Creek, in Clark County	Ashland.
Cavalry ; creek, a left-hand branch of Bluff Creek, in Comanche County	Coldwater.
Caven ; post village in Pratt County.	
Cave Springs ; post-office in Liberty Township, Elk County ...	Eureka.
Cawker ; city on Missouri Pacific Railway in Cawker Township, Mitchell County; altitude, 1,473 feet; population, 795.	Mankato.
Cawker ; township in Mitchell County; area, 36 square miles; population, 1,459.	{ Mankato. Beloit.
Cecil ; post village in Labette County.	
Cedar ; township in Barber County; area, 36 square miles; population, 272	Anthony.
Cedar ; township in Cowley County; area, 41 square miles; population, 341	Burden.
Cedar ; township in Jackson County; area, 40 square miles; population, 1,107	Topeka.
Cedar ; township in Smith County; area, 36 square miles; population, 694.	{ Smith Center. Phillipsburg.
Cedar ; township in Wilson County; area, 36 square miles; population, 968.	{ Fredonia. Independence.
Cedar ; creek, a branch of Pottawatomie Creek, in Anderson County	Garnett.

Atlas sheets.

- Cedar**; creek, a right-hand branch of Medicine Lodge River, in Barber County, formed by junction of East and West Cedar creeks..... **Medicine Lodge.**
- Cedar**; creek, a right-hand branch of Cottonwood River, in Chase County..... **Cottonwood Falls.**
- Cedar**; creek, a left-hand branch of Big Cana Creek, in Chautauqua County. It flows south into the Territory **Sedan.**
- Cedar**; creek, a right-hand branch of Big Cana Creek, in Cowley and Chautauqua counties. { **Burden.**
 { **Sedan.**
- Cedar**; creek, a right-hand branch of Grasshopper Creek, in Jackson, Brown, and Nemaha counties. { **Hiawatha.**
 { **Topeka.**
- Cedar**; creek, a right-hand branch of Grasshopper Creek, in Jackson County. It divides in two branches known as North and South Cedar creeks..... **Topeka.**
- Cedar**; creek, a right-hand branch of Grasshopper Creek, in Jefferson County..... **Oskaloosa.**
- Cedar**; creek, a small right-hand branch of the Kansas River, in Johnson County..... **Olathe.**
- Cedar**; creek, a right-hand branch of Saline River, in Russell County **Russell.**
- Cedar**; creek, a left-hand branch of North Fork Solomon River, in Smith County. { **Phillipsburg.**
 { **Smith Center.**
- Cedar**; township in Chase County; area, 90 square miles; population, 733.
- Cedar**; bluff, a hill in Wakeeney Township, Trego County..... **Ellis.**
- Cedar**; gorge in Wakeeney Township, Trego County **Ellis.**
- Cedar Bluffs**; a post village in Decatur County; altitude, 2,546 feet.
- Cedar Grove**; a station on Atchison, Topeka and Santa Fe Railway, in Cottonwood Township, Chase County; altitude, 1,246 feet **Cottonwood Falls.**
- Cedar Junction**; a post village in Johnson County; altitude, 780 feet.
- Cedar Point**; a post village in Cottonwood Township, Chase County **Cottonwood Falls.**
- Cedarvale**; a city in Jefferson Township, Chautauqua County, on Atchison, Topeka and Santa Fe and Missouri Pacific railways; population, 716; altitude, 907 feet..... **Sedan.**
- Cedarville**; a post village and station on the Missouri Pacific Railway, in Harvey Township, Smith County; altitude, 1,629 feet **Smith Center.**
- Cedron**; a post village in Lincoln County.
- Cedron**; township in Lincoln County; area, 36 square miles; population, 492..... **Beloit.**
- Celia**; township in Rawlins County; area, 108 square miles; population, 350.
- Center**; township in Atchison County; area, 54 square miles; population, 1,060. { **Atchison.**
 { **Oskaloosa.**
- Center**; township in Chautauqua County; area, 56 square miles; population, 612 **Sedan.**
- Center**; a township in Clark County; area, 120 square miles; population, 456.
- Center**; township in Cloud County; area, 54 square miles; population, 631. { **Minneapolis.**
 { **Concordia.**

	Atlas sheets,
Center; township in Decatur County; area, 36 square miles; population, 223.	
Center; township in Dickinson County; area, 36 square miles; population, 1,583.....	Abilene.
Center; township in Doniphan County; area, 61 square miles; population, 2,782.....	Atchison.
Center; township in Hodgeman County; area, 144 square miles; population, 527.	{ Ness City. Spearville.
Center; township in Jewell County; area, 36 square miles; population, 1,237.....	Mankato.
Center; township in Kiowa County; area, 30 square miles; population, 391.	{ Kinsley. Coldwater.
Center; township in Lyon County; area, 120 square miles; population, 1,298.....	Emporia.
Center; township in Marion County; area, 52 square miles; population, 2,430.	{ Newton. Cottonwood Falls.
Center; township in Marshall County; area, 36 square miles; population, 639.	{ Marysville. Seneca.
Center; township in Mitchell County; area, 36 square miles; population, 394	Beloit.
Center; township in Ness County; area, 48 square miles; population, 544.	{ Ness. Ellis.
Center; township in Norton County; area, 46 square miles; population, 1,386.....	Norton.
Center; township in Ottawa County; area, 36 square miles; population, 323.....	Minneapolis.
Center; township in Pottawatomie County; area, 30 square miles; population, 435	Wamego.
Center; township in Pratt County; area, 39 square miles; population, 1,442	Pratt.
Center; township in Reno County; area, 36 square miles; population, 575	Kingman.
Center; township in Rice County; area, 36 square miles; population, 472	Lyons.
Center; township in Riley County; area, 32 square miles; population, 482.	{ Junction City. Minneapolis.
Center; township in Rush County; area, 51 square miles; population, 236	Larned.
Center; township in Russell County; area, 141 square miles; population, 997.....	Russell.
Center; township in Smith County; area, 36 square miles; population, 1,096.....	Smith Center.
Center; township in Stevens County; area, 54 square miles; population, 78.	
Center; township in Wilson County; area, 42 square miles; population, 2,441.	{ Fredonia. Independence.
Center; township in Woodson County; area, 62 square miles; population, 2,043.....	Fredonia.
Center; creek, a left-hand branch of Spring River in Jasper County, Missouri.....	Joplin.
Center Ridge; a hamlet in Perry Township, Woodson County.	Fredonia.
Centerville; post-office in Centerville Township, Linn County; altitude, 885 feet	Mound City.

	Atlas sheets.
Centerville ; township in Linn County; area, 79 square miles; population, 1,664.	{ Mound City.
Centerville ; township in Neosho County; area, 48 square miles; population, 1,055.	{ Garnett.
Central ; post-village in Anderson County.....	{ Iola.
Centralia ; city in Home Township, Nemaha County, on Missouri Pacific Railway; altitude, 1,256 feet.....	{ Parsons.
Centropolis ; post village in Centropolis Township, Franklin County.....	Garnett.
Centropolis ; township in Franklin County; area, 39 square miles; population, 1,060.....	Seneca.
Cess ; post village in Morton County.	Lawrence.
Chaffee ; post village in Rush County.	Lawrence.
Chalk Mound ; post-office in Rock Creek Township, Wabauunsee County.....	
Challacombe ; post village in Ness County.	Eskridge.
Challender ; station on Missouri Pacific and Atchison, Topeka and Santa Fe railways, Topeka Township, Shawnee County.	
Chanute ; city in Tioga Township, Neosho County, on Missouri, Kansas and Texas and Atchison, Topeka and Santa Fe railways; population, 3,583; altitude, 940 feet.....	Burlingame.
Chaplin ; post village, Elk County.	Iola.
Chapman ; city in Noble Township, Dickinson County, on Union Pacific Railway; altitude, 1,113 feet; population, 407.....	
Chapman ; township in Clay County; area, 36 square miles; population, 535.....	Abilene.
Chapman ; township in Ottawa County; area, 36 square miles; population, 352.....	Clay Center.
Chapman ; creek, a left-hand branch of Smoky Hill River, in Dickinson County.....	Clay Center.
Chapman ; creek, a left-hand branch of Smoky Hill River, in Clay and Dickinson counties.	Abilene.
Chardon ; post village in Rawlins County.	{ Abilene.
Charleston ; a hamlet in Salt Springs Township, Greenwood County.....	
Charleston ; township in Washington County; area, 36 square miles; population, 574.	Eureka.
Charlotte ; post village in Sherman County.	Marysville.
Chase ; city in Lincoln Township, Rice County, on Atchison, Topeka and Santa Fe Railway; population, 358; altitude, 1,717 feet.....	{ Washington.
Chase ; central county, organized in 1859; area, 750 square miles; population, 7,210; county seat is Cottonwood Falls; mean magnetic declination, 9° 15'; rainfall, 30 inches; temperature, 54°.	

The surface is a plain, treeless except in the valleys, and is somewhat eroded by streams. It is drained by Cottonwood River. The elevation ranges from 1,100 to 1,500 feet. It is an agricultural county, two-fifths of its area being under cultivation, mainly in corn. It is traversed by branches of the Atchison, Topeka and Santa Fe Railway.

Parkersville.
Cottonwood Falls.
Emporia.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Bazaar.....	63	516
Cedar.....	90	733
Cottonwood.....	90	825
Diamond Creek.....	144	939
Falls.....	122	2,605
Cottonwood Falls.....		708
Strong.....		976
Matfield.....	108	738
Matfield Green.....		187
Toledo.....	138	860

Atlas sheets.

Chautauqua; southeastern county; organized in 1875; area, 651 square miles; population, 10,826; county seat is Sedan; mean magnetic declination, 8° 45'; rainfall, 32 inches; temperature, 56°.

Sedan.
Burden.

The surface is a broken plain, with little woodland, and that in the immediate valleys of the streams. The elevation ranges from 750 to 1,100 feet. More than one-half its area is under cultivation, mainly in corn and wheat. It is traversed by several branches of the Atchison, Topeka and Santa Fe Railway. Coal is found in thin beds along Big Caney River.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Belleville.....	56	1,275
Caneyville.....	56	850
Center.....	56	612
Harrison.....	56	700
Hendricks.....	56	785
Hewins.....		67
Jefferson.....	56	1,560
Cedar Vale.....		716
Lafayette.....	62	490
Little Caney.....	47	917
Niotaze.....		140
Salt Creek.....	49	560
Sedan.....	48	1,686
Sedan.....		1,119
Summit.....	56	698
Washington.....	47	633

Chautauqua; post village and station on Atchison, Topeka and Santa Fe Railway, in Belleville Township, Chautauqua County; altitude, 927 feet..... Sedan.

Cheever; township in Dickinson County; area, 36 square miles; population, 568..... Clay Center.

Chelsea; post village in Chelsea Township, Butler County.... Eldorado.

Chelsea; township in Butler County; area, 105 square miles; population, 582..... Eldorado.

Cheney; city in Morton Township, Sedgwick County, on Wichita and Western Railway; population, 314; altitude, 1,368 feet..... Cheney.

Atlas sheets.

Chepstow; post-office in Lincoln Township, WashingtonCounty **Marysville.**

Cherokee; southeastern county, organized in 1866; area, 589; population, 33,928; county seat is Columbus; mean magnetic declination, 8° 30'; rainfall, 38 inches; temperature, 55°. { **Parsons.**
Joplin.

The surface is mainly an undulating plain, becoming more broken in the southeastern portion. The elevation ranges from 800 to 1,000 feet. A small proportion only is timbered, the timber belts being mainly confined to the stream valleys. It is drained by Neosho and Spring rivers. The southeastern portion of the county contains rich mines of lead and zinc, and the entire county is underlaid by coal. Nearly one-third of its population are in its cities. More than one-half its area is under cultivation, mainly in corn and wheat. It is traversed by branches of Kansas City, Fort Scott and Memphis, and St. Louis and San Francisco railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Cherokee	31	1, 873
Crawford	36	838
Garden	34	2, 106
Lola	42	1, 225
Lowell	17	9, 533
Galena		4, 314
Empire		1, 529
Lyon	51	1, 073
Mineral	23	4, 440
Weir		3, 279
Neosho	60	1, 261
Pleasant View	45	1, 063
Ross	54	1, 796
Salamanca	36	3, 332
Columbus		2, 400
Shawnee	36	797
Sheridan	63	1, 425
Spring Valley	51	3, 117
Baxter Springs		1, 647

Cherokee; city in Sheridan Township, Crawford County, on Kansas City and Fort Scott Railway; population, 1,206; altitude, 931 feet..... **Joplin.**

Cherokee; township in Cherokee County; area, 31 square miles; population, 1,873..... **Joplin.**

Cherokee; township in Montgomery County; area, 38 square miles; population, 725..... **Independence.**

Cherry; township in Montgomery County; area, 40 square miles; population, 2,885..... **Independence.**

Cherry; creek, a left-hand branch of Neosho River in Cherokee County. { **Parsons.**
Joplin.

Cherry; creek, a left-hand branch of Drum Creek, in Montgomery County..... **Independence.**

Cherry; creek, a left-hand branch of Osage River, in Osage County..... **Burlingame.**

Cherry; creek, a left-hand branch of Owl Creek, in Woodson County..... **Fredonia.**

Atlas sheets.

- Cherry Creek**; township in Cheyenne County; area, 60 square miles; population, 230.
- Cherryvale**; city in Cherry Township, Montgomery County, on Atchison, Topeka and Santa Fe, and St. Louis and San Francisco railways; population, 2,069; altitude, 837 feet... **Cherryvale.**
- Chester**; post village in Jefferson County.
- Chetopa**; city in Richland Township, Labette County, on the Missouri, Kansas and Texas Railway; population, 2,424; altitude, 825 feet..... **Parsons.**
- Chetopa**; township in Neosha County; area, 48 square miles; population, 1,441. { **Iola.**
Parsons.
Fredonia.
Independence.
- Chetopa**; township in Wilson County; area, 36 square miles; population, 719. { **Fredonia.**
Independence.
- Chetopa**; creek, a right-hand branch of Elk River, in Montgomery County **Independence.**
- Chetopa**; creek, a left-hand branch of Verdigris River, in Wilson County.
- Cheyenne**; post-office in Jackson Township, Osborne County.. **Osborne.**
- Cheyenne**; township in Barton County; area, 72 square miles; population, 550. { **Russell.**
Great Bend.
- Cheyenne**; township in Lane County; area, 80 square miles; population, 234.
- Cheyenne**; northwest county; organized 1886; area, 1,020 square miles; population 3,641; county seat, St. Francis; mean magnetic declination, 12° 50'; rainfall, 15 inches; temperature, 52°.

The surface is a treeless plain, drained by Republican River. The elevation ranges from 3,000 to 3,500 feet. Little of its area is under cultivation. It is crossed by a branch of the Burlington and Missouri River Railway.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Alexander.....	36	136
Beaver.....	108	181
Benkelman.....	72	353
Bird City.....	36	186
Bird.....		122
Calhoun.....	72	253
Cherry Creek.....	60	230
Cleveland.....	72	241
Dent.....	72	203
Eureka.....	60	317
Evergreen.....	36	102
Jaqua.....	48	190
Jefferson.....	36	79
Lawn Ridge.....	72	171
Nuttyscombe.....	60	177
Orlando.....	36	100
Porter.....	108	209
Wano.....	36	513

- Cheyenne**; creek, a left-hand branch of Little Cana River, in Montgomery County **Independence.**
- Chicken**; creek, a left-hand branch of Elm Creek, in Wabaunsee and Lyon counties **Eskridge.**

Atlas sheets.

Atlas sheets.

- Chico**; post village and station on Missouri Pacific Railway, in Eureka Township, Saline County; altitude, 1,210 feet..... Abilene.
- Chicopee**; city in Baker Township, Crawford County; population, 668.
- Chikaskia**; river, a large right-hand branch of Arkansas River, in Southern Kansas and Indian Territory. { Wellington.
Anthony.
Medicine Lodge.
- Chikaskia**; township in Harper County; area, 54 square miles; population, 270..... Caldwell.
- Chikaskia**; township in Kingman County; area, 36 square miles; population, 295..... Anthony.
- Chikaskia**; township in Sumner County; area, 36 square miles; population, 305..... Caldwell.
- Chiles**; post village in Miami County.
- Chisholm**; creek, a left-hand branch of Arkansas River, in Sedgwick County..... Wichita.
- Choteau**; creek, a left-hand branch of Verdigris River, in Montgomery County..... Independence.
- Chouteau**; post village and station on Atchison, Topeka and Santa Fe Railway, in Monticello Township, Johnson county; altitude, 766 feet..... Kansas City.
- Christie**; village at crossing of Union Pacific, and Chicago, Burlington and Quincy railways, in Lawrence Township, Cloud County..... Concordia.
- Cicero**; post village and station on Atchison, Topeka and Santa Fe Railway in Harmon Township, Sumner County; altitude, 1,315 feet..... Wellington.
- Cimarron**; city in Cimarron Township, county seat of Gray County; magnetic declination, 10° 25'; situated on Arkansas River and on Atchison, Topeka and Santa Fe Railway; altitude, 2,625 feet; population, 224 (1895)..... Dodge.
- Cimarron**; township in Clark County; area, 105 square miles; population, 46..... Ashland.
- Cimarron**; township in Gray County; area, 96 square miles; population, 343..... Dodge.
- Cimarron**; township in Meade County; area, 115 square miles; population, 74..... Meade.
- Cimarron**; township in Morton County; area, 306 square miles; population, 40.
- Cimarron**; township in Seward County; area, 108 square miles; population, 38.
- Cimarron**; river, a long, right-hand branch of Arkansas River; heading in eastern Colorado and northwestern Oklahoma, it flows northeastward into southwest Kansas, then turning to the southeast, it reenters Oklahoma and Indian Territory, joining the Arkansas in the latter.
- Circleville**; city on Union Pacific Railway, in Jefferson Township, Jackson County; altitude, 1,098 feet; population, 287. Hiawatha.
- Clafin**; city on Missouri Pacific Railway, in Independence Township, Barton County; altitude, 1,795 feet; population, 201..... Russell.
- Clara**; post village in Washington County.
- Clarence**; township in Barton County; area, 36 square miles; population, 360. { Larned.
Great Bend.
- Clark**; township in Marion County; area, 36 square miles; population, 562. { Newton.
Abilene.

Atlas sheets.

Clark; southwestern county; organized, 1855; area, 975 square miles; population, 1,433; county seat, Ashland; mean magnetic declination, 10° 10'; rainfall, 23 inches; temperature, 56°.

Ashland.
Meade.

The surface is broken, with high plains, 2,600 feet in the north, succeeded southward by broken country, while the southern part is the valley of Cimarron River, much of which consists of sand hills. The entire area is treeless. The county is crossed by a branch of the Atchison, Topeka and Santa Fe Railway. Being sparsely populated, only a small proportion of its area is cultivated, mainly in corn, wheat, sorghum, and kaffir corn.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Appleton	120	214
Minneola		38
Brown	120	79
Center	120	456
Cimarron	105	46
Edwards	85	45
Englewood	85	188
Englewood		120
Lexington	80	186
Liberty	60	64
Sitka	80	84
Vesta	120	71

Clark; creek, a right-hand branch of Cimarron River, in Clark County Atlas sheets.
Ashland.

Clark; creek, a right-hand branch of Kansas River, in Riley, Davis, and Morris counties. { Junction City.
Parkerville.

Clarks; creek, a right-hand branch of Kansas River, in Davis County. { Parkerville.
Junction City.

Clarksburg; post village and station on Kansas City, Fort Scott and Gulf Railway, in Drywood Township, Bourbon County; altitude, 892 feet Fort Scott.

Clarks Creek; township in Morris County; area, 52 square miles; population, 320 Parkerville.

Clay; township in Butler County; area, 36 square miles; population, 245. { Eldorado.
Burden.

Clay; township in Reno County; area, 48 square miles; population, 544. { Hutchinson.
Cheney.

Clay; northern county; organized, 1866; area, 660 square miles; population, 14,136; county seat, Clay Center; mean magnetic declination, 10° 10'; rainfall, 28 inches; temperature, 53°.

Clay Center.
Washington.

The surface is a rolling, treeless plain, ranging in elevation from 1,100 to 1,500 feet. It is drained by Republican River, which crosses the county from northwest to southeast. Of the entire area three-fourths are under cultivation, mainly in corn. The county is traversed by branches of the Chicago, Rock Island and Pacific, Union Pacific, and Atchison, Topeka and Santa Fe railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Athelstane	36	606
Blaine	44	650
Bloom	47	703
Chapman	36	535
Clay Center	31	3,659
Clay Center		2,600
Exeter	36	485
Five Creeks	36	588
Idana		151
Garfield	36	633
Gill	30	474
Goshen	36	632
Grant	31	349
Highland	36	806
Green		207
Hayes	36	534
Mulberry	40	836
Clifton		216
Oakland	36	446
Republican	31	859
Wakefield		314
Sherman	30	858
Vining		77
Morganville		
Union	36	483

- Clay**; creek, a right-hand branch of South Fork of Solomon River, in Mitchell County..... *Atlas sheets.* Beloit.
- Clay Center**; township in Clay County; area, 31 square miles; population, 3,659..... Clay Center.
- Clay Center**; city in Clay Center Township and county seat of Clay County; magnetic declination, 9° 40'; altitude, 1,197 feet; it is situated in the valley of Republican River, on its left bank; it is entered by Union Pacific and by Chicago, Rock Island and Pacific railways; population, 2,600..... Clay Center.
- Claymore**; creek, a left-hand branch of Verdigris River, in Montgomery County..... Independence.
- Clayton**; post village in Norton County; altitude, 2,414 feet.
- Clear**; creek, a small branch of the Missouri River, in Doniphan County; length, 9 miles..... Atchison.
- Clear**; creek, a fork of Elk River, in Elk County..... Eureka.
- Clear**; creek, a left-hand branch of Smoky Hill River, in Ellsworth County..... Ellsworth.
- Clear**; creek, a small tributary to Kansas River, in Johnson County; length, 6 miles. { Kansas City.
Olathe.
Parkerville.
- Clear**; creek, a left-hand tributary to Cottonwood River, in Marion County. { Cottonwood Falls.
Newton.
- Clear**; creek, a left-hand branch of Black Vermilion River, in Marshall and Pottawatomie counties..... Seneca.
- Clear**; creek, a right-hand branch of Verdigris River, in Montgomery County..... Independence.
- Clear**; creek, a right-hand fork of Turkey Creek, in Nemaha County..... Seneca.
- Clear**; creek, a left-hand branch of Big Blue River, in Pottawatomie County..... Junction City.

	Atlas sheets.
Clear; creek, a branch of Clearwater Creek, in Sedgwick County	Cheney.
Clear; creek, a left-hand branch of Fall River, in Wilson County	Fredonia.
Clear Creek; post village in Clear Creek Township, Nemaha County	Seneca.
Clear Creek; township in Marion County; area, 76 square miles; population, 1,034.	{ Newton. Cottonwood Falls. Abilene. Parkerville.
Clear Creek; township in Nemaha County; area, 48 square miles; population, 871	Seneca.
Clear Creek; township in Pottawatomie County; area, 39 square miles; population, 649.	{ Seneca. Wamego.
Clear Creek; township in Stafford County; area, 36 square miles; population, 197.	{ Pratt. Kinsley.
Cleardale; post village in Sumner County.	
Clearfield; post village in Douglas County.	
Clear Fork; township in Marshall County; area, 54 square miles; population, 1,002	Seneca.
Clearwater; a city at crossing of Missouri Pacific, and Atchison, Topeka and Santa Fe railways, in Ninnescah Township, Sedgwick County; altitude, 1,264 feet; population, 277.	Cheney.
Clearwater; creek, a left-hand branch of Chikaskia River, in Harper and Kingman counties	Caldwell.
Clearwater; creek, a left-hand branch of Ninnescah River, in Sedgwick County	Cheney.
Cleburne; post village in Riley County; altitude, 1,068 feet.	
Clements; post village and station on Atchison, Topeka and Santa Fe Railway, in Cottonwood Township, Chase County.	Cottonwood Falls.
Cleo; post village in Brown County	Hiaawatha.
Cleveland; post village in Richland Township, Kingman County	Kingman.
Cleveland; township in Barton County; area, 36 square miles; population, 382	Russell.
Cleveland; township in Cheyenne County; area, 72 square miles; population, 241.	
Cleveland; township in Lane County; area, 80 square miles; population, 95.	
Cleveland; township in Marshall County; area, 36 square miles; population, 479	Seneca.
Cleveland; township in Stafford County; area, 36 square miles; population, 190	Great Bend.
Cleveland; township in Stevens County; area, 81 square miles; population, 69.	
Clifford; township in Butler County; area, 42 square miles; population, 531.	{ Newton. Cottonwood Falls.
Clifton; city on Union Pacific and Missouri Pacific railways, in Mulberry Township, Clay County; altitude, 1,271 feet; population, 216	Washington.
Clifton; city on Union Pacific and Missouri Pacific railways, in Clifton Township, Washington County; altitude, 1,271 feet; population, 249	Washington.
Clifton; township in Washington County; area, 36 square miles; population, 976	Washington.

	Atlas sheets.
Coal; creek, a right-hand branch of Osage River, in Franklin County	Lawrence.
Coal; creek, a left-hand branch of Grasshopper Creek, in Jefferson and Atchison counties	Oskaloosa.
Coal; creek, a right-hand branch of Cottonwood River, in Lyon County	Emporia.
Coal; creek, a right-hand branch of Verdigris River, in Montgomery County	Independence.
Coal; creek, a left-hand tributary to Vermilion River, in Pottawatomie and Nemaha counties	Seneca.
Coal; creek, a right-hand branch of Vermilion River, in Pottawatomie County	Wamego.
Coal; creek, a right-hand branch of Smoky Hill River, in Russell County	Russell.
Coalvile; post village and station on Kansas City, Fort Scott and Memphis Railway, in Lincoln Township, Crawford County; altitude, 834 feet	Fort Scott.
Coats; post village and station on Atchison, Topeka and Santa Fe Railway, in Grant Township, Pratt County; altitude, 1,963 feet	Pratt.
Codell; post village and station on Union Pacific Railway, in Paradise Township, Rooks County; altitude, 1,981 feet.	Plainville.
Coffey; eastern county; organized, 1859; area, 648 square miles; population, 16,366; county seat, Burlington; mean magnetic declination, 10° 10'; rainfall, 34 inches; temperature, 54°. {	Burlington. Emporia.

The surface is a nearly level plain, with little woodland, crossed from northwest to southeast by Neosho River. The elevation ranges from 950 to to 1,150 feet. It is an agricultural county, more than two-thirds of its area being under cultivation, mainly in corn. It is traversed by branches of the Atchison, Topeka and Santa Fe and Missouri Pacific railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Avon	30	746
Aliceville		94
Burlington	35	3,326
Burlington		2,474
California	28	538
Hampden	30	615
Key West	48	821
Leroy	21	1,227
Leroy		852
Liberty	72	1,171
Gridley		199
Lincoln	42	1,224
Lebo		561
Neosho	48	721
Ottumwa	53	1,108
Pleasant	68	1,196
Pottawatomie	54	832
Rock Creek	54	1,662
Waverly		569
Spring Creek	35	587
Star	34	692

Atlas sheets.

- Coffee**; creek, a branch of Big Blue River, in Johnson County. Olathe.
- Coffeyville**; city on Atchison, Topeka and Santa Fe and Missouri Pacific railways, in Parker Township, Montgomery County; altitude, 744 feet; population, 4,020 Independence.
- Colbert**; post village in Lincoln County.
- Colby**; city in Morgan Township, county seat of Thomas County; altitude, 3,135 feet; population, 467.
- Coldwater**; city in Coldwater Township, county seat of Comanche County, situated on Atchison, Topeka and Santa Fe Railway; altitude, 2,090 feet; population, 186 Coldwater.
- Coldwater**; township in Comanche County; area, 153 square miles; population, 428 Coldwater.
- Cole**; creek, a right-hand branch of Wakarusa Creek, in Douglas County Lawrence.
- Cole**; creek, a left-hand branch of Salt Creek, in Mitchell County Beloit.
- Cole**; creek, a right-hand branch of Osage River, in Osage County Burlington.
- Cole**; creek, a tributary to Walnut River, in Butler County... Eldorado.
- Coleman**; township in Washington County; area, 36 square miles; population, 529 Washington.
- Colfax**; post village in Chautauqua County.
- Colfax**; township in Cloud County; area, 36 square miles; population, 587 Clay Center.
- Colfax**; township in Marion County; area, 36 square miles; population, 401.
- Colfax**; township in Wilson County; area, 48 square miles; population, 916 Fredonia.
- Collyer**; post village in Trego County, on Union Pacific Railway; altitude, 2,578 feet.
- Collyer**; township in Trego County; area, 200 square miles; population, 412. { Hill.
Ellis.
- Coloma**; post village in Liberty Township, Woodson County.. Fredonia.
- Colony**; city on Missouri Pacific and Atchison, Topeka and Santa Fe railways, in Ozark Township, Anderson County; altitude, 1,122 feet; population, 538 Garnett.
- Colony**; township in Greeley County; area, 360 square miles; population, 271.
- Colorado**; township in Lincoln County; area, 36 square miles; population, 535. { Beloit.
Ellsworth.
Salina.
Minneapolis.
- Columbia**; township in Ellsworth County; area, 72 square miles; population, 817 Ellsworth.
- Columbus**; city on Kansas City, Fort Scott and Memphis and St. Louis and San Francisco railways, in Salamanca Township, county seat of Cherokee County; altitude, 893 feet; population, 2,400 Joplin.
- Colusa**; post village in Haskell County.
- Colwich**; city on Missouri Pacific Railway, in Union Township, Sedgwick County; population, 186 Cheney.
- Comanche**; village in Valley Township, Comanche County.... Coldwater.
- Comanche**; township in Barton County; area, 65 square miles; population, 752 Great Bend.

Comanche; southern county; organized, 1885; area, 795 square miles; population, 1,269; county seat, Coldwater; mean magnetic declination, 10° 20'; rainfall, 25 inches; temperature, 57°. Atlas sheets.
Coldwater.
Ashland.

The northwestern part is an elevated plain, while the southeastern part is heavily eroded by streams. The southwestern corner is crossed by Cimarron River. The elevation ranges from 1,700 to 2,200 feet. The county is traversed by a branch of the Atchison, Topeka and Santa Fe Railway. Only a small proportion of its area is under cultivation.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Avilla.....	124	107
Coldwater.....	153	428
Coldwater.....		186
Irwin.....	36	34
Logan.....	54	128
Nescatunga.....	45	47
Powell.....	72	139
Protection.....	72	212
Rumsey.....	87	44
Shimer.....	87	56
Valley.....	68	74

Comiskey; post village in Morris County; altitude, 1,245 feet. Atlas sheets.
Concord; post village in Sumner County.
Concord; township in Ford County; area, 72 square miles; population, 81 Dodge.
Concord; township in Ottawa County; area, 36 square miles; population, 1,875..... Minneapolis.
Concordia; city in Lincoln Township, county seat of Cloud County. It is situated on right bank of Republican River. It is entered by Chicago, Burlington and Quincy, Union Pacific, Atchison Topeka and Santa Fe, and Missouri Pacific railways. Altitude, 1,362 feet; population, 2,741..... Concordia.
Conductor; post village in Grant County.
Conkling; township in Pawnee County; area, 36 square miles; population, 51 Larned.
Connor; post village and station on Missouri Pacific Railway, in Prairie Township, Wyandotte County; altitude, 760 feet. Kansas City.
Connor; creek, a small branch of Missouri River, in Wyandotte County; length, 5 miles..... Kansas City.
Conquest; post village in Wichita County.
Conway; post village and station on Atchison, Topeka and Santa Fe Railway, in Jackson Township, McPherson County; altitude, 1,526 feet Hutchinson.
Conway; township in Sumner County; area, 36 square miles; population, 1,047..... Caldwell.
Conway Springs; city on Missouri Pacific Railway, in Conway Township, Sumner County; altitude, 1,358 feet; population, 521 Caldwell.
Cook; post village in Owl Creek Township, Woodson county.. Fredonia.
Cook; township in Decatur County; area, 36 square miles; population, 177.

Atlas sheets.

Coolidge ; city in Coolidge Township, Hamilton County; altitude, 3,348 feet; population, 241.....	Grenada.
Coolidge ; township in Hamilton County; area, 108 square miles; population, 334.	
Coon ; creek, a right-hand branch of Cedar Creek, and tributary to Cottonwood River, in Chase County	Cottonwood Falls.
Coon ; creek, a left-hand branch of Cedar Creek, in Chautauqua County	Sedan.
Coon ; creek, a left-hand branch of Wakarusa Creek, in Douglas County	Lawrence.
Coon ; creek, a left-hand tributary to Bee Creek, in Montgomery County	Independence.
Coon ; creek, a right-hand branch of West Branch of Fall River, in Greenwood County	Eureka.
Coon ; creek, a right-hand branch of South Fork of Ninnescah River, in Kingman County	Cheney.
Coon ; creek, a right-hand branch of Little Blue River, in Marshall and Washington counties.	{ Marysville. Washington.
Coon ; creek, a right-hand branch of Arkansas River, in Pawnee, Edwards, and Ford counties.	{ Kinsley. Spearville. Larned.
Coon ; creek, a right-hand branch of Fall River, in Wilson and Elk counties.....	Fredonia.
Cooper ; township in Stafford County; area, 72 square miles; population, 585	Great Bend.
Copper ; creek, a left-hand tributary to Chikaskia River, in Kingman County.	{ Anthony. Kingman.
Cora ; post village in Cora Township, Smith County.....	Smith Center.
Cora ; township in Smith County; area, 36 square miles; population, 515	Smith Center.
Corbin ; city on Atchison, Topeka and Santa Fe and Chicago, Rock Island and Pacific railways, in Falls Township, Sumner County; altitude, 1,161 feet; population, 174	Caldwell.
Corinth ; hamlet in Corinth Township, Osborne County	Osborne.
Corinth ; township in Osborne County; area, 36 square miles; population, 404.	{ Osborne. Beloit.
Corning ; city on Missouri Pacific Railway, in Illinois Township, Nemaha County; altitude, 1,357 feet; population, 404..	Seneca.
Corning ; township in Rooks County; area, 36 square miles; population, 255	Plainville.
Coronado ; post village on Missouri Pacific Railway, in Wichita County; altitude, 3,267 feet.	
Coronado ; township in Wichita County; area, 108 square miles; population, 184.	
Cortland ; township in Republic County; area, 36 square miles; population, 689.....	Concordia.
Corwin ; post village and station on Missouri Pacific Railway, in Blaine Township, Harper County; altitude, 1,279 feet ...	Anthony.
Costello ; post village in Montgomery County.	
Cottage Grove ; township in Allen County; area, 48 square miles; population, 794.	{ Iola. Garnett.
Cottage Hill ; township in Marshall County; area, 36 square miles; population, 554	Marysville.

Atlas sheets.

Cotton ; creek, a left-hand branch of Bee Creek, in Montgomery County	Independence.
Cottonwood ; township in Chase County; area, 90 square miles; population, 825	Cottonwood Falls.
Cottonwood ; creek, a left-hand branch of Sandy Creek, in Harper County	Anthony.
Cottonwood ; river, a right-hand branch of Neosho River, in Marion, Chase, and Lyon counties.	{ Newton. Abilene. Cottonwood Falls.
Cottonwood ; creek, a small tributary to Big Bull Creek, in Miami County	Olathe.
Cottonwood ; creek, a left-hand branch of Little Blue River, in Washington County	Marysville.
Cottonwood Falls ; city on Atchison, Topeka and Santa Fe Railway, in Falls Township; county seat of Chase County; altitude, 1,191 feet; population, 708	Cottonwood Falls.
Council Grove ; city in Council Grove Township and county seat of Morris County. It is situated on Neosho River, and on Missouri, Kansas and Texas and Missouri Pacific railways; altitude, 1,234 feet; population, 2,415.	{ Parkerville. Esbridge.
Council Grove ; township in Morris County; area, 36 square miles; population, 2,849.	{ Parkerville. Esbridge.
Courtland ; city on Chicago, Rock Island, Pacific and Atchison, Topeka and Santa Fe railways, in Courtland Township, Republic County; altitude, 1,505 feet; population, 161.	Concordia.
Covert ; post village in Covert Township, Osborne County	Osborne.
Covert ; township in Osborne County; area, 36 square miles; population, 319	Osborne.
Covert ; creek, a right-hand branch of South Fork Solomon River, in Osborne County	Osborne.
Cow ; island in Missouri River, in Atchison County	Kansas City.
Cow ; creek, a left-hand branch of Arkansas River, in Barton, Rice, and Reno counties.	{ Russell. Great Bend. Lyons, Hutchinson. Cheney.
Cow ; creek, a right-hand branch of Spring River, in Cherokee and Crawford counties	Joplin.
Cow ; creek, a left-hand branch of Smoky Hill River, in Ellsworth County	Ellsworth.
Cow ; creek, a right-hand branch of Shonganunga Creek, in Shawnee County	Burlingame.
Cowley ; southern county; organized, 1870; area, 1,112 square miles; population, 26,426; county seat, Winfield; mean magnetic declination, 9°.00; rainfall, 32 inches; temperature, 57°.	{ Burden. Wellington.

The surface is a broken plain, treeless, except along a few of the streams. It is drained by Arkansas River, which flows south along the west boundary. The elevation ranges from 1,000 to 1,500 feet. It is an agricultural county, one-half its area being under cultivation, mainly in corn. One-half its population are in cities. It is traversed by several railways, branches of Atchison, Topeka and Santa Fe, St. Louis and San Francisco, and Missouri Pacific systems.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Beaver	36	538
Bolton	51	1, 073
Cedar	41	341
Creswell	44	6, 370
Arkansas		5, 623
Dexter	72	976
Dexter		259
Fairview	36	639
Grant	55	321
Harvey	60	539
Liberty	48	563
Maple	36	497
Ninnescah	36	1, 078
Udall		333
Omnia	36	447
Otter	48	409
Pleasant Valley	44	823
Richland	72	1, 138
Rock Creek	36	533
Sheridan	36	466
Silver Creek	36	1, 036
Burden		452
Silverdale	54	532
Spring Creek	45	410
Tisdale	30	526
Vernon	44	779
Walnut	38	5, 533
Winfield		4, 610
Windsor	90	859

Atlas sheets.

- Cowskin**; creek, a right-hand branch of Arkansas River, in } Wellington.
Sumner and Sedgwick counties. } Wichita.
} Cheney.
- Cox**; creek, a tributary to West Fork of Drywood Creek, in
Crawford and Bourbon counties Fort Scott.
- Coyville**; post village in Verdigris Township, Wilson County;
altitude, 873 feet. Fredonia.
- Craig**; creek, a right-hand branch of Cedar Creek, in Brown
and Nemaha counties. Hiawatha.
- Craik**; creek, a left-hand branch of Cottonwood River, in Chase
County Cottonwood Falls.
- Crandall**; post village in Coffey County.
- Crane**; post village in Montgomery County; altitude, 780 feet.
- Crawford**; post village and station on Missouri Pacific Rail-
way, in Union Township, Rice County; altitude, 1,229 feet. Ellsworth.
- Crawford**; township in Cherokee County; area, 36 square miles;
population, 838. Joplin.
- Crawford**; township in Crawford County; area, 63 square } Joplin.
miles; population, 4,315. } Fort Scott.

Atlas sheets.

Crawford; southeastern county; organized, 1867; area, 592 square miles; population, 36,381; county seat, Girard; mean magnetic declination, 10°.05'; rainfall, 38 inches; temperature, 55°. Atlas sheets.
Iola.
Fort Scott.
Parsons.
Joplin.

The surface is an undulating plain, with little timber, and that mainly confined to stream valleys. The elevation ranges from 850 and 1,000 feet. Its interests are largely agricultural, about one-half the area being under cultivation, mainly in corn and wheat. It is traversed by several railways, branches of the Missouri, Kansas and Texas; Kansas City, Fort Scott and Memphis, and St. Louis and San Francisco systems. The county is underlaid by coal, which is extensively mined. There are also valuable mines of lead and zinc in the southeastern portion, which produce largely.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Baker	72	16,070
Litchfield		664
Midway		180
Chicopee		668
Opolis		217
Frontenac		691
Pittsburg		10,172
Ashton		488
Crawford	63	4,315
Girard		2,782
Grant	56	1,208
Lincoln	72	2,764
Arcadia		632
Osage	61	1,899
McCune		680
Sherman	72	1,366
Sheridan	72	3,382
Cherokee		1,206
Walnut	64	2,049
Walnut		554
Hepler		270
Washington	63	3,328
Frontenac		361
Mulberry		240

Creek; township in Sumner County; area, 36 square miles; population, 372. Atlas sheets.

Crescent; post village in Kiowa County.

Crestline; post village and station on St. Louis and San Francisco Railway, in Shawnee Township, Cherokee County; altitude, 866 feet..... Joplin.

Creswell; post village in Liberty Township, Marion County.. Newton.

Creswell; township in Cowley County; area, 44 square miles; population, 6,370. Wellington.
Burden.

Crisfield; post village and station on Atchison, Topeka and Santa Fe Railway, in Greene Township, Harper County; altitude, 1,351 feet..... Anthony.

Critzler; post village in Linn County.

Crocker; creek, a left-hand branch of South Fork Cottonwood River, in Chase County..... Cottonwood Falls.

- Crooked**; creek, a right-hand branch of Big Stranger Creek, in Atchison and Jefferson counties; length, 15 miles *Atlas sheets.*
Oskaloosa.
- Crooked**; creek, a small left-hand branch of Neosho River, in Coffee County *Burlington.*
- Crooked**; creek, a left-hand branch of Elm Creek, in Barber County *Medicine Lodge.*
- Crooked**; creek, a long left-hand branch of Cimarron River, in Gray, Ford and Meade counties, joining Cimarron River in the northern part of Oklahoma; length, 95 miles. { *Meade.*
Dodge.
Garden.
- Crooked**; creek, a left-hand branch of Little Arkansas River, in McPherson and Harvey counties *Hutchinson.*
- Crooked**; creek, a right-hand branch of Neosho River, in Morris County *Parkerville.*
- Crooked**; creek, a right-hand branch of Fancy Creek, in Riley County *Junction City.*
- Crooked**; creek, a left-hand branch of Verdigris River, in Wilson County *Fredonia.*
- Crooked Creek**; township in Meade County; area, 54 square miles; population, 200 *Meade.*
- Cross**; creek, a left-hand tributary to Chikaskia River, in Kingman County. { *Anthony.*
Kingman.
- Cross**; creek, a left-hand branch of Kansas River, in Pottawatomie, Jackson, and Shawnee counties. { *Wamego.*
Topeka.
- Crotty**; post village in Coffey County.
- Crow**; post village in Phillips County.
- Crow**; creek, a right-hand branch of Verdigris River, in Montgomery County *Independence.*
- Crystal**; township in Norton County; area, 36 square miles; population, 376.
- Crystal**; township in Phillips County; area, 36 square miles; population, 414 *Phillipsburg.*
- Crystal**; creek, a left-hand tributary to Pottawatomie Creek, in Anderson County *Garnett.*
- Crystal Plains**; township in Smith County; area, 36 square miles; population, 514 *Smith Center.*
- Crystal Springs**; post village and station on Atchison, Topeka and Santa Fe Railway, in Lake Township, Harper County.. *Anthony*
- Cuba**; city on Burlington and Missouri River, and Chicago, Rock Island and Pacific railways, in Richland Township, Republic County; altitude, 1,593 feet; population, 367 *Washington.*
- Cullison**; post village and station on Chicago, Rock Island and Pacific, and Atchison, Topeka and Santa Fe railways, in Richland Township, Pratt County; altitude, 2,042 feet .. *Pratt.*
- Culver**; post village and station on Union Pacific Railway, in Culver Township, Ottawa County; altitude, 1,266 feet *Salina.*
- Culver**; township in Ottawa County; area, 36 square miles; population, 544. { *Minneapolis.*
Salina.
- Cummings**; post village and station on Atchison, Topeka and Santa Fe Railway, in Atchison County; altitude, 983 feet.. *Oskaloosa.*
- Cunningham**; post village and station on Wichita and Western Railway, in Rural Township, Kingman County *Kingman.*
- Curran**; post village in Harper County.
- Curtis**; a lake without outlet, in Ashland Township, Clark County *Ashland.*
- Custer**; township in Decatur County; area, 36 square miles; population, 171.

	Atlas sheets.
Custer; township in Mitchell County; area, 36 square miles; population, 357	Beloit.
Cutler; township in Franklin County; area, 43 square miles; population, 828.	{ Lawrence. Garnett.
Dafer; post village in Leavenworth County.	
Dale; township in Kingman County; area, 36 square miles; population, 347.	{ Cheney. Kingman.
Dalton; post village and station on Atchison, Topeka and Santa Fe Railway, in Avon Township, Sumner County; altitude, 1,208 feet	Wellington.
Damar; post village in Rooks County; altitude, 2,113 feet.	
Dan; post village and station on St. Louis and San Francisco Railway, Neodesha Township, Wilson County	Independence.
Dana; post village in Phillips County; altitude, 1,860 feet.	
Danby; post village in Ness County.	
Danville; station on Missouri Pacific Railway, in Lulu Township, Mitchell County	Beloit.
Danville; post village and station on Atchison, Topeka and Santa Fe Railway, in Odell Township, Harper County; altitude, 1,348 feet	Caldwell.
Darlington; township in Harvey County; area, 36 square miles; population, 541	Wichita.
Darnell Branch; a left-hand fork of Rock Creek, in Pottawatomie County	Wamego.
Davis; creek, a right-hand tributary to Clark Creek, in Davis County	Parkerville.
Davis; creek, a left hand tributary to Big Sugar Creek, in Linn County	Mound City.
Davis; creek, a right-hand branch of Mill Creek, in Washington County	Washington.
Day; post village and station on Missouri Pacific Railway, in Sheridan Township, Washington County; altitude, 1,315 feet	Washington.
Day; creek, left-hand branch of Bluff Creek, in Clark County.	Ashland.
Dayton; post village in Dickinson county.	
Dayton; township in Phillips County; area, 36 square miles; population, 456.	{ Phillipsburg. Norton.
Dayton; township in Saline County; area, 36 square miles; population, 464	Abilene.
Deadman; creek, a right-hand branch of Onion Creek, in Montgomery County	Independence.
Dean; post village in Jefferson County.	
Dearing; post village in Montgomery County.	
Decatur; post village in Decatur County.	
Decatur; northwest county; organized, 1880; area, 900 square miles; population, 7,152; county seat, Oberlin; mean magnetic declination, 11° 30'; rainfall, 20 inches; temperature, 52°.	

The surface is a treeless plain, drained by Sappa, Prairie Dog, and Beaver creeks. The elevation ranges from 2,300 to 2,800 feet. More than one-third its area is under cultivation. It is traversed by branches of the Chicago, Rock Island and Pacific and Burlington and Missouri River railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Allison	36	192
Altory	36	268
Bassettville	36	222
Beaver	36	263
Center	36	223
Cook	36	177
Custer	36	171
Dresden	36	292
Finley	36	234
Garfield	36	236
Grant	36	348
Harlan	72	549
Jennings	36	362
Liberty	36	258
Lincoln	36	499
Noreatur		171
Logan	72	462
Lyon	36	184
Oberlin	36	1,011
Oberlin		768
Olive	36	245
Pleasant Valley	36	189
Prairie Dog	36	195
Sherman	36	270
Summit	36	302

Atlas sheets.

- Deception**; creek, in Barton County, flowing into a marsh in { Russell.
Cheyenne Bottoms. { Great Bend.
- Deep**; creek, a right-hand branch of Kansas River, in Riley
County..... Wamego.
- Deer**; creek, a left-hand branch of Middle Cana Creek, in Chau-
taqua County..... Sedan.
- Deer**; creek, a left-hand branch of Wakarusa Creek, in Doug- { Burlingame.
las and Shawnee counties. { Topeka.
{ Lawrence.
- Deer**; creek, a right-hand branch of Labette Creek, in Labette
County..... Parsons.
- Deer**; creek, a right-hand branch of Nemaha River, in Nemaha { Hiawatha.
County. { Seneca.
- Deer**; creek, a right-hand branch of Shonganunga Creek, and { Burlingame.
tributary to Kansas River in Shawnee County. { Topeka.
- Deer**; creek, a left-hand branch of North Fork of Solomon
River, in Phillips County..... Phillipsburg.
- Deer**; creek, a left-hand branch of Slate Creek, in Sumner
County..... Wellington.
- Deer Creek**; township in Phillips County; area, 36 square miles;
population, 445..... Phillipsburg.
- Deer Creek**; township in Allen County; area, 36 square miles; { Iola.
population, 567. { Garnett.
- Deerfield**; post village in Kearney County; altitude, 2,942 feet.
- Deerhead**; post village in Deerhead Township, Barber County. Medicine Lodge.
- Deerhead**; township in Barber County; area, 64 square miles; { Medicine Lodge.
population, 81. { Coldwater.
- Defiance**; hamlet in Owl Creek Township, Woodson County... Fredonia.
- Degraff**; post village in Butler County.
- Delano**; township in Sedgwick County; area, 40 square miles;
population, 582..... Wichita.

Atlas sheets.

- Delavan**; station on Missouri Pacific Railway, in Diamond Valley Township, Morris County; altitude, 1,489 feet..... Parkerville.
- Delaware**; township in Jefferson County; area, 89 square miles; population, 2,966. { Oskaloosa.
Topeka.
- Delaware**; township in Leavenworth County; area, 31 square miles; population, 1,064..... Kansas City.
- Delaware**; township in Wyandotte County; area, 34 square miles; population, 1,968..... Kansas City.
- Delhi**; hamlet in Delhi Township, Osborne County..... Osborne.
- Delhi**; township in Osborne County; area, 54 square miles; population, 582. { Osborne.
Beloit.
- Delight**; post village in Ellsworth County.
- Deliverance**; post village in Osborne County.
- Dellvale**; post village in Norton County.
- Delmore**; post village in McPherson County.
- Delmore**; township in McPherson County; area, 36 square miles; population, 432. { Salina.
Abilene.
Hutchinson.
Newton.
- Delphos**; city on Union Pacific Railway, in Sheridan Township, Ottawa County; altitude, 1,299 feet; population, 475..... Minneapolis.
- Denison**; post village and station on Kansas City, Wichita and Northwestern Railway, in Jackson County; altitude, 1,024 feet.
- Denmark**; post village in Grant Township, Lincoln County.... Beloit.
- Dennis**; post village and station on Kansas City, Fort Scott and Memphis Railway, in Osage Township, Labette County. Parsons.
- Denamore**; post village and station on Missouri Pacific Railway, in West Union Township, Norton County..... Norton.
- Dent**; township in Cheyenne County; area, 72 square miles; population, 203.
- Dentonia**; post village in Jewell County.
- Dentonville**; post village in Doniphan County.
- Derby**; city on Atchison, Topeka and Santa Fe Railway, in Rockford Township, Sedgwick County; altitude, 1,280 feet; population, 257 (1895)..... Wichita.
- Dermot**; post village in Stevens County.
- Dermot**; township in Stevens County; area, 81 square miles; population, 44.
- Derry**; post village and station on St. Louis and San Francisco Railway, Otter Creek Township, Greenwood County..... Eureka.
- Desoto**; post village and station on Atchison, Topeka and Santa Fe Railway, in Lexington Township, Johnson County; altitude, 792 feet..... Olathe.
- Detroit**; post village and station on Union Pacific Railway, in Dickinson County; altitude, 1,135 feet.
- Devils Ditch**; a small, right-hand branch of Arkansas River, in Reno County..... Cheney.
- Devizes**; post village in Norton County.
- Devon**; post village in Bourbon County.
- Dewitt**; post village in Washington County.
- Dexter**; city and railway station on Missouri Pacific Railway, in Dexter Township, Cowley County; altitude, 910 feet; population, 259..... Burden.
- Dexter**; township in Cowley County; area, 72 square miles; population, 976..... Burden.
- Diagonal**; creek, a left-hand branch of Whitewater River, in Butler County. (Called Avery Creek on Eldorado sheet.) { Eldorado.
Wichita.

Atlas sheets.

Dial; post village in Osborne County.

Diamond; island in Missouri River, in Leavenworth County... Kansas City.

Diamond; creek, a left-hand branch of Cottonwood River, in Chase County..... Cottonwood Falls.

Diamond Creek; township in Chase County; area, 144 square miles; population, 939. } Cottonwood Falls.
Parkerville.

Diamond Springs; post village and station on Atchison, Topeka and Santa Fe Railway, in Morris County; altitude, 1,341 feet.

Diamond Valley; township in Morris County; area, 76 square miles; population, 568 Parkerville.

Dickinson; central county; organized, 1857; area, 851 square miles; population, 19,911; county seat, Abilene; mean magnetic declination, 9° 30'; rainfall, 28 inches; temperature 53°. } Abilene.
Clay Center.

The surface is an undulating, treeless plain. Across it from west to east flows Smoky Hill River, in a very winding course. The elevation ranges from 1,100 to 1,500 feet. The county is predominantly agricultural, more than two-thirds of its area being under cultivation, mainly in wheat and corn. Besides Abilene it contains several smaller cities, Herington, Solomon, Chapman, and Hope. About one-third of the population of the county is in these cities. It is traversed by branches of the Atchison, Topeka and Santa Fe, Missouri Pacific, Union Pacific, and Chicago, Rock Island and Pacific railways. At Solomon are salt works, the brine being obtained from springs.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Banner	36	577
Buckeye	36	539
Center	36	1,583
Enterprise	36	906
Cheever	36	568
Flora	36	594
Fragrant Hill	30	583
Garfield	36	436
Grant	36	3,921
Abilene	36	3,377
Hayes	30	494
Holland	36	377
Hope	36	1,023
Hope	36	442
Jefferson	36	723
Liberty	44	574
Lincoln	36	1,215
Solomon	36	830
Logan	36	399
Lyon	36	2,002
Herington	36	1,534
Newbern	36	594
Noble	34	755
Chapman	36	407
Ridge	36	679
Rinehart	36	404
Sherman	30	478
Union	36	536
Wheatland	36	288
Willowdale	36	569

The surface is a plain, somewhat eroded by streams. Missouri River, which forms the eastern boundary, is in a broad valley limited by bluffs 100 to 200 feet in height. The elevation ranges from 800 to 1,000 feet. The county is treeless, except in valleys. It is an agricultural county, two-thirds of its area being cultivated, mainly in corn and wheat. It is traversed by branches of the Missouri Pacific, Chicago, Rock Island and Pacific, and St. Joseph and Grand Island railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Burr Oak	34	954
Center	61	2, 782
Troy		910
Iowa	85	3, 908
Highland		639
White Cloud		827
Marion	20	678
Union	36	907
Washington	27	2, 075
Wathena		763
Elwood		402
Wayne	62	1, 551
Wolf River	68	2, 326
Severance		482
Leona		259

Atlas sheets.

- Doniphan**; city in Wayne Township, Doniphan County. It is situated on the right bank of Missouri River, and on the Missouri Pacific Railway..... Atchison.
- Dor**; township in Smith County; area, 36 square miles; population, 286. { Smith Center.
Phillipsburg.
- Dorrance**; city on Union Pacific Railway, in Plymouth Township, Russell County; altitude, 1,729 feet; population, 137. Russell.
- Dorsey**; branch, a small branch of Wea Creek, in Miami County..... Olathe.
- Doster**; post village in Sumner County.
- Douglas**; eastern county; organized, 1855; area, 469 square miles; population, 24,046; county seat, Lawrence; mean magnetic declination, 8° 35'; rainfall, 33 inches; temperature, 53°. { Lawrence.
Burlingame.
Oskaloosa.
Topeka.
- The surface is a plain, eroded by streams, especially in the northern part, and is drained by Kansas River. The elevation ranges from 800 to 1,200 feet. It is an agricultural county, about half its area being cultivated. One-half its population is in its cities, Lawrence alone containing 10,684. It is traversed by branches of the Atchison, Topeka and Santa Fe and Union Pacific railways. Some coal is mined at Sibley.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Lawrence		10,684
Clinton	40	977
Eudora	48	2,090
Eudora		669
Grant	18	555
Kauwaka	50	839
Lecompton	53	1,236
Lecompton		426
Marion	72	1,369
Palmyra	82	2,944
Baldwin		1,178
Wakarusa	65	2,223
Willow Springs	54	1,129

Atlas sheets.

- Douglass**; station on Atchison, Topeka and Santa Fe Railway, in Douglass Township, Butler County; altitude, 1,203 feet; population, 595..... Wichita.
- Douglass**; township in Butler County; area, 36 square miles; population, 1,023. { Wichita.
Eldorado.
Wellington.
Burden.
- Douglas**; township in Jackson County; area, 65 square miles; population, 1,331..... Topeka.
- Douglas**; township in Stafford County; area, 36 square miles; population, 209..... Great Bend.
- Dover**; post village in Dover Township, Shawnee County..... Burlingame.
- Dover**; township in Shawnee County; area, 54 square miles; population, 1,119. { Topeka.
Burlingame.
- Downer**; creek, a left-hand branch of Smoky Hill River, in Trego County..... Ellis.

Atlas sheets.

Downs ; city on Missouri Pacific Railway, in Ross Township, Osborne County; altitude, 1,483 feet; population, 804	Smith Center.
Downs ; township in Sumner County; area, 36 square miles; { population, 536. {	Caldwell. Wellington.
Dows ; creek, a left-hand branch of Allen Creek, in Lyon { County. {	Emporia. Eskridge.
Doyle ; township in Marion County; area, 33 square miles; pop- ulation, 1,853	Cottonwood Falls.
Doyle ; creek, a right-hand branch of Cottonwood River, in { Harvey and Marion counties. {	Newton. Cottonwood Falls.
Dragoon ; post village and station on Atchison, Topeka and Santa Fe Railway, in Dragoon Township, Osage County	Burlingame.
Dragoon ; township in Osage County; area, 36 square miles; population, 710	Burlingame.
Dragoon ; creek, a left-hand branch of Osage River, in Osage { and Wabaunsee counties. {	Burlingame. Eskridge.
Dresden ; post village in Decatur County; altitude, 2,727 feet.	
Dresden ; township in Decatur County; area, 36 square miles; population, 292.	
Dresden ; township in Kingman County; area, 36 square miles; population, 311	Kingman.
Driftwood ; township in Rawlins County; area, 80 square miles; population, 377.	
Driftwood ; creek, a branch of Mule Creek, in Barber County ..	Medicine Lodge.
Drum ; creek, a left-hand tributary of Verdigris River, in Mont- gomery County	Independence.
Drum Creek ; township in Montgomery County; area, 34 square miles; population, 755	Independence.
Drummond Branch ; a small tributary to Big Bull Creek, in Miami County	Olathe.
Drury ; post village and station on St. Louis and San Francisco Railway, in Falls Township, Sumner County; altitude, 1,084 feet	Wellington.
Dry ; creek, a branch of Salt Fork of Arkansas River, in Barber County	Medicine Lodge.
Dry ; creek, a right-hand branch of Clarks Creek, in Davis County	Parkerville.
Dry ; creek, a right-hand branch of Deer Creek, in Douglas County	Lawrence.
Dry ; creek, a left-hand branch of West Emma Creek, in Harvey County	Newton.
Dry ; creek, a right-hand branch of Mulberry Creek, and tribu- tary to Saline River, in Saline County	Salina.
Dry ; creek, a small, left-hand branch of Osage River, in Osage County	Burlingame.
Dry ; creek, a left-hand branch of Republican River, in Republic County	Concordia.
Dry ; creek, a left-hand branch of Cow Creek, in Rice County ..	Lyons.
Dry ; creek, a right-hand branch of Cowskin Creek, in Sedgwick { County. {	Wichita. Cheney.
Dry ; creek, a right-hand branch of Mill creek, in Wabaunsee County	Wamego.
Dry ; creek, a left-hand branch of Republican River, in Wash- ington County	Washington.
Dry ; creek, a left-hand tributary to Verdigris River, in Wilson County	Independence.

Dry Walnut ; creek, a right-hand branch of Walnut Creek, in Rush County.....	Larned.
Drywood ; township in Bourbon County; area, 45 square miles; population, 1,647.....	Fort Scott.
Drywood ; post village in Crawford County.	
Dubuque ; post village in Center Township, Russell County...	Russell.
Duck ; creek, a small, right-hand branch of Neosho River, in Coffey County	Burlington.
Duck ; creek, a right-hand branch of Saw Log Creek, in Ford County.....	Spearville.
Duck ; creek, a right-hand branch of Grasshopper Creek, in Jefferson County.....	Oskaloosa.
Duck ; creek, a left-hand branch of Chikaskia River, in Kingman County.	Kingman. Anthony.
Duck ; creek, a right-hand branch of Osage River, in Lyon County.	Burlingame. Eskridge.
Duck ; creek, a left-hand branch of Elk River, in Montgomery County	Independence.
Duck ; creek, a left-hand branch of Onion Creek, in Montgomery County	Independence.
Duck ; creek, a right-hand branch of Smoky Hill River, in Rush and Ellis counties.....	Hays.
Duck Creek ; township in Wilson County; area, 36 square miles; population, 477	Independence.
Dudley ; township in Haskell County; area, 64 square miles; population, 20	Garden.
Dunavant ; post village and station on Kansas City, Wichita and Northwestern Railway, in Jefferson County; altitude, 1,139 feet.	
Duncan ; creek, a left-hand branch of Little Osage River, in Vernon County.	Mound City. Fort Scott.
Dundee ; post village and station on Atchison, Topeka and Santa Fe Railway, in Barton County; altitude, 1,904 feet.	
Dunlap ; city on Missouri, Kansas and Texas Railway, in Valley Township, Morris County; altitude, 1,180; population, 398.	Eskridge.
Duquoin ; post village in Harper County.	
Durachen ; post village in Butler County.	
Durachon ; creek, a tributary to Walnut River, in Butler County	Eldorado.
Durham ; post village and station on Chicago, Rock Island and Pacific Railway, in Durham Park Township, Marion County; altitude, 1,378 feet	Newton.
Durham ; township in Ottawa County; area, 36 square miles; population, 166.....	Clay Center.
Durham ; creek, a left-hand branch of Rock Creek, in Cowley and Butler counties.....	Burden.
Durham Park ; township in Marion County; area, 36 square miles; population, 514.	Newton. Abilene.
Dutch ; creek, a left-hand branch of Walnut River, in Cowley County	Burden.
Dutch ; creek, a small left-hand branch of Walnut River, in Cowley County	Wellington.
Dutch ; creek, a right-hand branch of Vermillion River, in Pottawatomie County.	Seneca. Wamego.

	Atlas sheets.
Dwight ; city on Chicago, Rock Island and Pacific Railway, in Ohio Township, Morris County; altitude, 1,500 feet; population, 130	Parkerville.
Eagle ; post village and station on Missouri, Kansas and Texas Railway, in Barber County; altitude, 1,046 feet.	
Eagle ; township in Barber County; area, 113 square miles; population, 172	Medicine Lodge.
Eagle ; township in Harper County; area, 54 square miles; population, 141	Anthony.
Eagle ; township in Kingman County; area, 36 square miles; population, 331.	{ Cheney. Anthony. Caldwell. Kingman.
Eagle ; township in Sedgwick County; area, 36 square miles; population, 610.	{ Cheney. Wichita.
Eagle ; creek, left-hand branch of Saline River, in Ellis and Rooks counties	Hill.
Eagle ; creek, a right-hand branch of Neosho River, in Lyon and Coffey counties.	{ Emporia. Burlington.
Eagle ; creek, a right-hand branch of Smoky Hill River, in Rush and Ellis counties	Hays.
Earleton ; post village and station on Atchison, Topeka and Santa Fe Railway, in Neosho County; altitude, 961 feet.	
East Beaver ; creek, a left-hand branch of Beaver Creek, in Smith County	Smith Center.
East ; branch of Fall River, in Greenwood County	{ Eureka. Emporia.
East ; branch of Clear Creek, in Marion County	Cottonwood Falls.
East ; branch of Neosho River, in Morris County	Parkerville.
East ; branch of Mill Creek, in Wabannsee County	Eskridge.
East ; branch of Gar Creek, in Washington County	Washington.
East ; branch of Downer Creek, in Trego County	Ellis.
East ; branch of Fall Creek, in Sumner County	Caldwell.
East ; branch of Prairie Creek, in Sumner County	Caldwell.
East ; branch of Walnut River, in Butler County	{ Cottonwood Falls. Eldorado.
East ; left-hand branch of Wolf Creek, in Russell and Osborne counties	Osborne.
East Branch ; township in Marion County; area, 36 square miles; population, 518	Newton.
East Buffalo ; creek, a branch of Buffalo Creek, in Wilson and Woodson counties	Fredonia.
East Cedar ; creek, a left-hand branch of Cedar Creek, in Smith County	Smith Center
East Cedar ; creek, a left-hand tributary to Verdigris River, in Wilson County	Fredonia.
East Creek ; a left-hand branch of Salt Creek, in Republic County	Concordia.
East Dry ; creek, a right-hand branch of Smoky Hill River, in Saline County	Salina.
East Elkhorn ; creek, right-hand fork of Elkhorn Creek, in Lincoln County	Ellsworth.
East Fork ; right-hand fork of Rock Creek, in Pottawatomie County	Wamego.

Atlas sheets.

- East Genda Springs**; city in Bolton Township, Cowley County; population, 169 (1890); no post-office.
- East Marsh**; creek, left-hand branch of Buffalo Creek, in Jewell and Republic counties. { Mankato.
Concordia.
- East Mission**; creek, a small, left-hand branch of Kansas River, in Wyandotte County; length, 5 miles. Kansas City.
- East Norway**; station on St. Joseph and Grand Island Railway, in Wolf River Township, Doniphan County. Atchison.
- East Oak**; creek, a left-hand branch of Oak Creek, in Jewell County. Mankato.
- Easton**; township in Leavenworth County; area, 42 square miles; population, 1,304. Oskaloosa.
- Easton**; city on Union Pacific Railway, in Easton Township, Leavenworth County; altitude, 905 feet; population, 132. Oskaloosa.
- East Pipe**; creek, fork of Pipe Creek, in Ottawa and Cloud counties. Minneapolis.
- East Twin**; creek, a right-hand branch of Saline River, in Lincoln County. Ellsworth.
- East Wolf**; hamlet in Fairview Township, Russell County. Osborne.
- Eatonville**; post village in Cowley County.
- Echo**; post village in Douglas County.
- Eden**; post village in Atchison County.
- Eden**; township in Meade County; area, 66 square miles; population, 58. Meade.
- Eden**; township in Ness County; area, 104 square miles; population, 198.
- Eden**; township in Sumner County; area, 36 square miles; population, 435. Caldwell.
- Edgerton**; city on Atchison, Topeka and Santa Fe Railway, in McCamish Township, Johnson County; altitude, 966 feet; population, 343. Lawrence.
- Edith**; post village in Logan County.
- Edmond**; post village and station on Missouri Pacific Railway, in Solomon Township, Norton County; altitude, 2,125 feet. Norton.
- Edna**; city on Missouri Pacific Railway, in Elm Grove Township, Labette County; altitude, 978 feet; population, 410.
- Edson**; post village and station on Chicago, Rock Island and Pacific Railway, in Sherman County. Altitude, 3,568 feet.
- Edwards**; township in Clark County; area, 85 square miles; population, 46. Ashland.
- Edwards**; township in Wichita County; area, 216 square miles; population, 407.
- Edwards**; creek, a right-hand branch of Smoky Hill River, in McPherson County. { Hutchinson.
Salina.
- Edwards**; Southern County; organized 1874; area, 612 square miles; population, 3,147; county seat, Kinsley; mean magnetic declination, 10° 25'; rainfall, 24 inches; temperature 55°. { Ness.
Larned.
Spearville.
Kinsley.

The county is crossed from southwest to northeast by Arkansas River. The country west of the river is a rolling plain, while east of it is a region of sand hills, and the entire county is treeless. The elevation ranges from 2,000 to 2,400 feet. Most of the area is devoted to pasturage. It is traversed by a line of the Atchison, Topeka and Santa Fe Railway.

Townships and cities.	Area.	Population.
	<i>Sq. Miles.</i>	
Belpre	54	246
Brown	155	433
Franklin	72	363
Jackson	72	184
Kinsley	43	1,022
Kinsley		713
Lincoln	72	353
Logan	36	149
Trenton	48	202
Wayne	52	195

Atlas sheets.

- Edwardsville**; post village and station on Union Pacific Railway, in Delaware Township, Wyandotte County; altitude, 777 feet Kansas City.
- Edwin**; post village in Stanton County.
- Effingham**; post village and station on Missouri Pacific Railway, in Benton Township, Atchison County. Altitude, 1,131 feet; population, 361 (1890) Atchison.
- Eightmile**; creek, a right-hand tributary to Walnut River, in Butler and Cowley counties. { Wichita.
Wellington.
- Eightmile**; creek, a left-hand branch of Osage River, in Franklin and Douglas counties Lawrence.
- Elba**; post village in Chase County.
- Elbing**; post village and station on Chicago, Rock Island and St. Paul Railway, in Fairmount Township, Butler County; altitude, 1,441 feet Newton.
- Elco**; post village in Lyon County.
- Elders**; creek, a left-hand branch of Buffalo Creek, in Wilson County Fredonia.
- Eldorado**; city in Eldorado Township and county seat of Butler County; magnetic declination, 9° 20'; altitude, 1,291 feet. It is situated in the valley of Walnut River, mainly on the right bank. It is a railroad center of importance, being entered by branches of the Atchison, Topeka and Santa Fe and Union Pacific Railways; population, 3,528.... Eldorado.
- Eldorado**; township in Butler County; area, 58 square miles; population, 4,053..... Eldorado.
- Eldred**; post village in Elwood Township, Barber County..... Medicine Lodge.
- Eleanor**; post village in Harvey County.
- Eleon**; station on Chicago, Rock Island and Pacific Railway, in Limestone Township, Jewell County Mankato.
- Elgin**; post village and station on Atchison, Topeka and Santa Fe Railway, in Hendricks Township, Chautauqua County; altitude, 781 feet..... Sedan.
- Ellnor**; station on Atchison, Topeka and Santa Fe Railway, in Toledo Township, Chase County Emporia.
- Elk**; southeastern county; organized, 1875; area, 651 square miles; population, 10,356; county seat, Howard; mean magnetic declination, 9° 30'; rainfall, 32 inches; temperature, 56°. { Eldorado.
Eureka.
Burden.
Sedan.

The surface is a rolling plain, treeless except in the stream valleys. The elevation ranges from 900 to 1,500 feet. About half its area is under cultivation, mainly in corn. It is traversed by branches of the Atchison, Topeka and Santa Fe Railway. Coal is mined near Moline.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Elk Falls	58	793
Elk Falls		227
Greenfield	67	1, 210
Grenola		603
Howard	62	1, 871
Howard		1, 050
Liberty	60	668
Longton	45	1, 002
Longton		522
Oak Valley	45	751
Oak Valley		188
Painterhood	60	540
Pawpaw	54	882
Union Center	144	1, 297
Wild Cat	53	1, 342
Moline		720

- Elk**; post village in Chase County. Atlas sheets.
- Elk**; city on Atchison, Topeka and Santa Fe and Missouri Pacific railways, in Louisburg Township, Montgomery County; altitude, 825 feet; population, 698. Independence.
- Elk**; township in Cloud County; area, 28 square miles; population, 1,371. Washington.
- Elk**; township in Osage County; area, 54 square miles; population, 1,767. Burlingame.
- Elk**; township in Rawlins County; — square miles; population, 183.
- Elk**; creek, a left-hand branch of Little Osage River, in Bourbon and Linn counties. Mound City.
- Elk**; creek, a right-hand branch of Wakarusa Creek, in Douglas and Osage counties. Burlingame.
{ Lawrence.
- Elk**; creek, a right-hand branch of Grasshopper Creek, in Jackson County; length, 27 miles. Topeka.
{ Hiawatha.
- Elk**; creek, a right-hand branch of Big Blue River, in Marshall County. Marysville.
- Elk**; creek, a right-hand branch of Neosho River, in Neosho County. Iola.
- Elk Creek**; township in Republic County; area, 36 square miles; population, 641. Washington.
- Elk**; creek, a small tributary to Elm Creek, in Wabaunsee County. Eskridge.
- Elk**; river, a right-hand branch of Verdigris River, in Elk and Montgomery counties. Sedan.
{ Independence.
- Elkader**; post village in Logan County.
- Elkader**; township in Logan County; area, 108 square miles; population, 97.
- Elk Falls**; city in Elk Falls Township, Elk County, on Atchison, Topeka and Santa Fe Railway, also on Elk River; altitude, 930 feet; population, 227. Sedan.
- Elk Falls**; township in Elk County; area, 58 square miles; population, 793. Sedan.
- Elkhorn**; township in Lincoln County; area, 36 square miles; population, 1,314. Beloit.
{ Ellsworth.
- Elkhorn**; creek, a right-hand branch of Saline River, in Lincoln County. Ellsworth.
{ Beloit.

Atlas sheets.

Ellinwood; city on Atchison, Topeka and Santa Fe Railway, in Lakin Township, Barton County; altitude, 1,789 feet; population, 664 Great Bend.

Elliot; post village in Sheridan County.

Ellis; city on Union Pacific Railway, in Ellis Township, Ellis County; magnetic declination, $10^{\circ} 45'$; altitude, 2,119 feet; population, 1,017 (1895) Ellis.

Ellis; township in Ellis County; area, 114 square miles; population, 1,277. { Ellis.
Hays.

Ellis; central county; organized, 1867; area, 900 square miles; population, 7,283; county seat, Hays; mean magnetic declination, $10^{\circ} 20'$; rainfall, 23 inches; temperature, 53° . { Hays.
Ellis.
Hill.

The surface is a treeless plain, in certain places much eroded by streams. It is drained by Smoky Hill River, which crosses it from west to east. The elevation ranges from 1,800 to 2,300 feet. Less than one-half its area is under cultivation, largely in wheat. It is crossed by a branch of the Union Pacific Railway.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Big Creek	120	1,215
Hays		(1895) 979
Buckeye	72	280
Catharine	44	463
Ellis	114	1,277
Ellis		(1895) 1,017
Freedom	45	325
Hamilton	107	431
Hartsook	30	673
Lookout	54	352
Pleasant Hill	62	223
Saline	156	367
Smoky Hill	81	163
Victoria	35	386
Walker	65	555
Wheatland	54	573

Atlas sheets.

Ellsworth; city in Ellsworth Township, and county seat of Ellsworth County; magnetic declination, 10° ; altitude, 1,537 feet. It is situated on the north bank of Smoky Hill River and on Union Pacific Railway Ellsworth.

Ellsworth; township in Ellsworth County; area, 36 square miles; population, 1,761 Ellsworth.

Ellsworth; central county; organized, 1867; area, 720 square miles; population, 8,686; county seat, Ellsworth; mean magnetic declination, $10^{\circ} 20'$; rainfall, 26 inches; temperature, 53° . { Ellsworth.
Russell.

The surface is a broken, treeless plain, much eroded by streams. It is drained by Smoky Hill River, which crosses the county from west to east. The elevation ranges from 1,400 to 1,900 feet. It is an agricultural county, three-fifths of its area being under cultivation, mainly in wheat and corn. It is traversed by branches of the Union Pacific, St. Louis and San Francisco, Missouri Pacific, and Atchison, Topeka and Santa Fe railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Columbia	72	817
Ellsworth	36	1,761
Kanopolis		179
Ellsworth		1,268
Empire	146	776
Garfield	132	815
Green Garden	36	518
Langley	36	362
Lincoln	36	294
Noble	36	470
Palacky	36	420
Sherman	36	394
Thomas	36	259
Valley	36	562
Wilson	36	1,238
Wilson		763

Atlas sheets.

- Elm**; township in Allen County; area, 48 square miles; population, 892 Iola.
- Elm**; township in Pratt County; area, 36 square miles; population, 269. { Pratt.
Medicine Lodge.
- Elm**; post village on Missouri Pacific Railway, Labette County; altitude, 900 feet.
- Elm**; branch, a left-hand branch of Osage River, in Miami County. { Mound City.
Olathe.
- Elm**; branch, a small tributary to Big Bull Creek, in Miami County Olathe.
- Elm**; branch, a small left-hand branch of Osage River, in Miami County Olathe.
- Elm**; creek, a left-hand tributary of Neosho River, in Allen County Iola.
- Elm**; creek, a left-hand branch of Medicine Lodge River, in Barber County, formed by junction of North and South Elm creeks Medicine Lodge.
- Elm**; creek, a right-hand branch of Republican River, in Cloud County. { Concordia.
Washington.
- Elm**; creek, a right-hand branch of Sawlog Creek, in Ford County Spearville.
- Elm**; creek, a right-hand branch of Marias des Cygnes Creek, in Lyon County Eskridge.
- Elm**; creek, a right-hand branch of Sugar Creek, in Miami County Mound City.
- Elm**; creek, a right-hand branch of Osage River, in Linn County Mound City.
- Elm**; creek, a right-hand branch of Neosho River, in Morris County. { Parkerville.
Eskridge.
- Elm**; creek, a right-hand branch of South Fork of Solomon River, in Rooks County Plainville.
- Elm**; creek, a right-hand branch of Ninescah River, in Sumner County Wellington.
- Elm**; creek, a left-hand branch of Onion Creek, in Montgomery County Independence.

Atlas sheets.

Elm ; creek, a left-hand branch of Duck Creek, in Montgomery County	Independence.
Elm ; creek, a left-hand branch of Pumpkin Creek, in Montgomery County	Independence.
Elm Creek ; township in Marshall County; area, 36 square miles; population, 566	Marysville.
Elm Creek ; township in Morris County; area, 74 square miles, population, 1,001	Parkerville.
Elm Creek ; township in Saline County; area, 36 square miles; population, 540	Salina.
Elmdale ; post village and station on Atchison, Topeka and Santa Fe Railway, Diamond Creek Township, in Chase County; altitude, 1,195 feet	Cottonwood Falls.
Elmandaro ; township in Logan County; area, 100 square miles; population, 2,200	Emporia. Burlington.
Elmer ; station on Missouri Pacific Railway, in Lincoln Township, Reno County	Cheney.
Elm Grove ; township in Labette County; area, 52 square miles; population, 1,320	Parsons.
Elm Mills ; township in Barber County; area, 60 square miles; population, 164	Medicine Lodge.
Elmo ; post village in Banner Township, Dickinson County	Abilene.
Elmont ; post village on Chicago, Rock Island and Pacific Railway, in Shawnee County; altitude, 946 feet.	
Elmore ; in Elmore Township, city and railroad station in Allen County; population, 219; altitude, 1,055 feet	Iola.
Elmore ; township in Allen County; area, 64 square miles; population, 1,721	Iola.
Elwood ; city on Chicago, Rock Island and Pacific Railway, in Washington Township, Doniphan County; population, 402; altitude, 817 feet	
Elwood ; township in Barber County; area, 105 square miles; population, 238	Medicine Lodge.
Elyria ; post village and station on Missouri Pacific Railway, in King City Township, McPherson County; altitude, 1,486 feet	Hutchinson.
Embry ; station on Missouri Pacific Railway, in Silver Creek Township, Harper County	Caldwell.
Emerson ; post village in Stafford County.	
Eminence ; post village in Finney County.	
Eminence ; township in Woodson county; area, 36 square miles; population, 554	Fredonia.
Emma ; township in Harvey County; area, 36 square miles; population, 710	Newton.
Emma ; creek, a left-hand branch of Little Arkansas River, in Harvey County.	Newton. Wichita.
Emmet ; township in Pottawatomie County; area, 34 square miles; population, 324	Wamego.
Emmet ; post village in Wyandotte County.	
Emmett ; township in Norton County; area, 36 square miles; population, 405	Norton.
Emmons ; post village and station on Burlington and Missouri River Railway, in Charleston Township, Washington County; altitude, 1,289 feet	Washington.

Atlas sheets.

- Empire**; in Lowell Township, on Kansas City, Fort Scott and Memphis Railway, in Cherokee County; population, 1,529. Joplin.
- Empire**; township in Ellsworth County; area, 146 square miles; population, 776 Ellsworth.
- Empire**; township in Harper County; area, 36 square miles; population, 172.
- Empire**; township in McPherson County; area, 36 square miles; population, 837. { Hutchinson.
Newton.
- Emporia**; city in Emporia Township, county seat of Lyon County; population, 8,676; magnetic declination, 9° 20'; altitude, 1,134 feet. It is situated between Cottonwood and Neosho rivers, and is entered by branches of Atchison, Topeka and Santa Fe and Missouri Pacific railways Emporia.
- Emporia**; township in Lyon County; area, 66 square miles; population, 10,654 Emporia.
- Englewood**; city in Englewood Township, on Atchison, Topeka and Santa Fe Railway, Clark County; population, 120; altitude, 1,962 feet Ashland.
- Englewood**; township in Clark County; area, 85 square miles; population, 188. { Ashland.
Meade.
- Englevale**; post village in Lincoln Township, Crawford County Fort Scott.
- Enon**; post village in Barber County.
- Enonadale**; post village in Washington County.
- Ensign**; post village and station on Dodge City, Montezuma and Trinidad Railroad, in Hess Township, Gray County... Dodge.
- Enterprise**; city in Center Township, on Atchison, Topeka and Santa Fe and Chicago, Rock Island and Pacific railways; population, 906; altitude, 1,137 feet Abilene.
- Enterprise**; township in Reno County; area, 36 square miles; population, 429 Lyons.
- Erie**; city in Erie Township, county seat of Neosho County, on Atchison, Topeka and Santa Fe Railway; population, 1,212; altitude, 907 feet Iola.
- Erie**; township in Neosho County; area, 48 square miles; population, 2,240 Iola.
- Erie**; township in Sedgwick County; area, 36 square miles; population, 248. { Cheney.
Caldwell.
- Erving**; township in Jewell County; area, 36 square miles; population, 483 Mankato.
- Esakridge**; city in Wilmington Township, Wabaunsee County, on Atchison, Topeka and Santa Fe Railway; population, 560; altitude, 1,412 Eskridge.
- Essex**; post village in Finney County.
- Eudora**; city in Eudora Township, Douglas County, on the Atchison, Topeka and Santa Fe Railway; population, 669; altitude, 813 Lawrence.
- Eudora**; township in Douglas County; area, 48 square miles; population, 2,090 Lawrence.
- Eureka**; city in Eureka Township, county seat of Greenwood County; population, 2,660; magnetic declination, 9° 15'; altitude, 1,079 feet. It is situated on Fall River and on the Atchison, Topeka and Missouri Pacific railways Eureka.
- Eureka**; township in Barton County; area, 36 square miles; population, 291. { Great Bend.
Russell.
- Eureka**; township in Cheyenne County; area, 60 square miles; population, 317.

Atlas sheets.

Eureka ; township in Greenwood County; area, 60 square miles; population, 2,659.....	Eureka.
Eureka ; township in Kingman County; area, 36 square miles; population, 269.....	Kingman.
Eureka ; township in Mitchell County; area, 36 square miles; population, 349.....	{ Beloit. Minneapolis.
Eureka ; township in Rice County; area, 36 square miles; population, 552.....	{ Lyons. Ellsworth.
Eureka ; township in Saline County; area, 36 square miles; population, 986.....	Abilene.
Evan ; township in Kingman County; area, 36 square miles; population, 466.....	Cheney.
Evan ; creek, a small left-hand tributary to Grasshopper Creek, in Jefferson County.....	Oskaloosa.
Evansville ; hamlet in Diamond Valley Township, in Morris County.....	Parkerville.
Eve ; post village in Bourbon County.	
Everest ; city in Washington Township, a station on Missouri Pacific Railway, in Brown County; population, 489; altitude, 1,146 feet.....	Atchison.
Everett ; hamlet in Everett Township, Woodson County.....	Fredonia.
Everett ; township in Woodson County; area, 54 square miles; population, 819.....	{ Fredonia. Burlington.
Evergreen ; township in Cheyenne County; area, 36 square miles; population, 102.	
Ewell ; post village and station on Missouri Pacific Railway, in Springdale Township, Sumner County; altitude, 1,350 feet.	Caldwell.
Example ; township in Haskell County; area, 64 square miles; population, 69.....	Garden.
Exeter ; post village in Clay County.	
Exeter ; township in Clay County; area, 36 square miles; population, 485.....	Clay Center.
Ezbon ; post village and station on Chicago, Rock Island and Pacific Railway, in Ezbon Township, Jewell County; altitude, 1,825 feet.....	Mankato.
Ezbon ; township in Jewell County; area, 36 square miles; population, 650.....	Mankato.
Fact ; post village in Clay County.	
Fairdale ; post village in Wyandotte County.	
Fairfax ; township in Osage County; area, 45 square miles; population, 754.....	Burlingame.
Fairfield ; post village and station on Atchison, Topeka and Santa Fe Railway, in Alma Township, Wabaunsee County; altitude, 1,069 feet.....	Wamego.
Fairfield ; township in Russell County; area, 40 square miles; population, 241.....	Russell.
Fairhaven ; post village in Norton County.	
Fairmount ; post village and station on Union Pacific Railway, in Fairmount Township, Leavenworth County; altitude, 956 feet.....	Kansas City.
Fairmount ; township in Butler County; area, 36 square miles; population, 598.....	Newton.
Fairmount ; township in Leavenworth County; area, 40 square miles; population, 1,051.....	Kansas City.
Fairplay ; township in Marion County; area, 45 square miles; population, 442.....	{ Newton. Cottonwood Falls.

Atlas sheets.

Fairport ; post village in Paradise Township, Russell County ..	Plainville.
Fairview ; post village in Walnut Township, Brown County, a station on Chicago, Rock Island and Pacific Railway; altitude, 1,214 feet.....	Hiawatha.
Fairview ; township in Barton County; area, 36 square miles; population, 303.....	Russell. Hays.
Fairview ; township in Butler County; area, 36 square miles; population, 362.....	Eldorado. Wichita.
Fairview ; township in Cowley County; area, 36 square miles; population, 600.....	Burden. Wellington.
Fairview ; township in Ford County; area, 72 square miles; population, 145.....	Dodge.
Fairview ; township in Jefferson County; area, 35 square miles; population, 822.....	Oskaloosa.
Fairview ; township in Labette County; area, 36 square miles; population, 741.....	Parsons.
Fairview ; township in Republic County; area, 36 square miles; population, 750.....	Washington. Concordia.
Fairview ; township in Rush County; area, 48 square miles; population, 239.....	Hays.
Fairview ; township in Russell County; area, 216 square miles; population, 1,577.....	Osborne. Russell.
Fairview ; township in Stafford County; area, 36 square miles; population, 436.....	Pratt. Kingman.
Falkenstein ; township in Stanton County; area, 126 square miles; population, 45.....	
Fall ; post village in Leavenworth County.....	
Fall , creek, a right-hand branch of Big Stranger Creek, in Leavenworth County	Oskaloosa.
Fall ; creek, a left-hand branch of Bluff Creek, in Sumner County	Caldwell.
Fall ; river, a right-hand branch of Verdigris River in Wilson and Elk counties.....	Independence. Fredonia.
Fall ; river, a large right-hand branch of Verdigris River, in Wilson, Elk, and Greenwood counties.....	Fredonia. Eureka. Independence.
Fall River ; city in Salt Springs Township, on Fall River and on St. Louis and San Francisco Railway; altitude, 925 feet; population, 393	Eureka.
Fall River ; township in Greenwood County; area, 60 square miles; population, 936.....	Eureka.
Fall River ; township in Wilson County; area, 50 square miles; population, 1,111.....	Fredonia. Independence.
Falls ; township in Chase County; area, 122 square miles; population, 2,605.....	Cottonwood Falls. Emporia.
Falls ; township in Sumner County; area, 54 square miles; population, 728.....	Caldwell. Wellington.
Falun ; post village and station on Missouri Pacific Railway, in Falun Township, Saline County; altitude, 1,333 feet.....	Salina.
Falun ; township in Saline County; area, 36 square miles; population 594	Salina.
Fame ; post-office in Pleasant Grove Township, Greenwood County	Eureka.

- Fancy**; creek, a right-hand branch of Big Blue River, in Riley County. Atlas sheets.
Junction City.
Marysville.
- Fancy Creek**; post village in Clay County.
- Fancy Creek**; township in Riley County; area, 32 square miles; population, 463. Junction City.
- Fanning**; post village and station on Burlington and Missouri River Railway, in Iowa Township, Doniphan County; altitude, 908 feet. Atchison.
- Fargo**; township in Seward County; area, 117 square miles; population, 139.
- Farisville**; post village in Ellsworth County.
- Farlington**; post village and station on Kansas City, Fort Scott and Memphis Railway, in Sherman Township; altitude, 990 feet. Fort Scott.
- Farlinville**; post-office in Paris Township, Linn County. Mound City.
- Farmer**; township in Rice County; area, 36 square miles; population, 572. Lyons.
Ellsworth.
- Farmer**; township in Wabaunsee County; area, 66 square miles; population, 364. Eskridge.
- Farmington**; post village and station on Missouri Pacific Railway, in Atchison County; altitude, 1,024 feet. Atchison.
- Farmington**; township in Republic County; area, 36 square miles; population, 670. Washington.
- Farmington**; township in Rooks County; area, 36 square miles; population, 189. Phillipsburg.
Plainville.
- Farmington**; township in Stafford County; area, 36 square miles; population, 363. Pratt.
Kinsley.
- Farmington**; township in Washington County; area, 36 square miles; population, 593. Washington.
- Faulkner**; post village in Cherokee County.
- Fawn**; creek, a left-hand branch of Verdigris River, in Lyon County. Emporia.
- Fawn**; creek, hamlet in Fawn Creek Township, Montgomery County. Independence.
- Fawn**; creek, a right-hand branch of Onion Creek, in Montgomery County. Independence.
- Fawn Creek**; township in Montgomery County; area, 72 square miles; population, 1,302. Independence.
- Fay**; post-office in Paradise Township, Russell County. Osborne.
- Federal**; post village in Hamilton County.
- Fellsburg**; post village in Edwards County.
- Fenton**; post village in Rush County.
- Ferguson**; station on Atchison, Topeka and Santa Fe Railway, in Franklin Township, Franklin County. Lawrence.
- Fiat**; post-office and station on Atchison, Topeka and Santa Fe Railway, in Paw Paw Township, Elk County. Eureka.
- Fidelity**; post village in Nemaha County.
- Fifth**; creek, a left-hand branch of Salt Creek, in Mitchell County. Beloit.
- Findlay**; post village and railway station, in Linn County; altitude, 935 feet.
- Fingal**; post village in Rush County.
- Finley**; township in Decatur County; area, 36 square miles; population, 234.

Atlas sheets.

Finney; western county; organized 1884; area, 1,296 square miles; population, 3,505; county seat, Garden; mean magnetic declination, 10° 50'; rainfall, 20 inches; temperature, 55°

Garden.

The surface is a treeless plain, covered with sand hills, especially south of Arkansas River, which crosses the county from west to east. The elevation ranges from 2,700 to 3,000 feet. Little of the area is under cultivation. It is crossed by the main line of the Atchison, Topeka and Santa Fe Railway. Large irrigation works have been constructed, especially near Garden.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Garfield	430	236
Garden City	162	2, 198
Garden		1, 620
Ivanhoe	108	66
Pierceville	144	111
Pleasant Valley	72	115
Sherlock	162	429
Terry	216	350

Atlas sheets.

Finney; post-office in Liberty Township, Woodson County.... Fredonia.

Fish; creek, a left-hand branch of Bluff Creek, in Clark

County

Ashland.

Fish; creek, a right-hand branch of South Fork of Ninnescah

River, in Kingman County

Cheney.

Fisher; post village in Stanton County.

Fisher; creek, a left-hand branch of Solomon River, in Cloud

County

Minneapolis.

Fishpond; creek, a small left-hand tributary to Grasshopper

Creek, in Jefferson County

Oskaloosa.

Five Creeks; township in Clay County; area, 36 square miles; population, 588

Clay Center.

Fivemile; creek, a small branch of Missouri River, in Leavenworth County; length, 5 miles

Kansas City.

Flatland; post-office in Salem Township, Greenwood County ..

Eureka.

Flavius; post village in Rush County.

Flening; post village in Crawford County.

Fletcher; post village in Stanton County.

Flintridge; post village in Greenwood County.

Flora; township in Dickinson County; area, 36 square miles; population, 594

Clay Center.

Floral; post village and railroad station in Richland Township, Cowley County

Burden.

Florence; city in Doyle Township on Atchison, Topeka and Santa Fe Railway, Marion County; altitude, 1,269 feet; population, 1,535

Cottonwood Falls

Folsom; post village in Haskell County.

Fonda; hamlet in Pleasant Valley Township, Ford County....

Spearville.

Fontana; city in Osage Township, Miami County, on Kansas City, Fort Scott and Memphis Railway; altitude, 930 feet; population, 1,042

Mound City.

Atlas sheets.

Foote; township in Gray County; area, 120 square miles; population, 130 Dodge.

Ford; Southwestern County; organized, 1873; area, 1,080 square miles; population, 5,003; county seat, Dodge; mean magnetic declination, 10° 15'; rainfall, 32 inches; temperature, 55°. { Spearville.
Dodge.

The surface is a high, treeless plain, somewhat broken, and largely covered by sand hills. The elevation ranges from 2,200 to 2,600 feet. It is drained by Arkansas River, which flows across it from west to east. The sparse population is, outside of the cities, mainly engaged in pastoral pursuits. The county is traversed by branches of the Atchison, Topeka and Santa Fe and Chicago, Rock Island and Pacific railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Bloom	72	44
Bucklin	36	171
Concord	72	81
Dodge	110	2, 115
Dodge		1, 871
Fairview	72	145
Ford	93	397
Ford		98
Grandview	85	637
Pleasant Valley	72	146
Richland	37	66
Royal	72	97
Sodville	36	76
Spearville	185	498
Wheatland	72	384
Wilburn	72	146

Atlas sheets.

Ford; city in Ford Township, Ford County, on Arkansas River and Chicago, Rock Island and Pacific Railway; altitude, 2,413 feet; population, 98..... Spearville.

Ford; township in Ford County; area, 93 square miles; population, 397 Spearville.

Formoso; city in Grant Township, on Chicago, Rock Island and Pacific Railway, in Jewell County; altitude, 1,511 feet; population, 144.

Forrester; township in Ness County; area, 80 square miles; population, 178.

Forsha; post village in Reno County.

Fort Dodge; post village in Ford County.

Fort Leavenworth; United States military post, situated on bank of Missouri River, in northern part of Leavenworth County; magnetic declination, 8° 40'; altitude, 793 feet..... Kansas City.

Fort Riley; post village on Union Pacific Railway, Geary County; altitude, 1,064 feet.

Fort Scott; city and county seat of Bourbon County, situated on the right bank of Marmaton River. It is an important railroad center, being entered by Kansas City, Fort Scott and Memphis, Missouri, Kansas and Texas, and Missouri Pacific railways; altitude, 803 feet; population, 11,673. Fort Scott.

Atlas sheets.

Fossil ; creek, a left-hand branch of Smoky Hill River, in Russell County	Russell.
Foster ; branch, a right-hand tributary of Verdigris River, in Montgomery County	Independence.
Postoria ; post office and station on Kansas Central Railway, Shannon Township, in Pottawatomie County; altitude, 1,454 feet	Junction City.
Fountain ; post village in Osage County.	
Fountain ; township in Ottawa County; area, 36 square miles; population, 620	Minneapolis.
Fournile ; township in Morris County; area, 36 square miles; population, 358.	
Fournile ; creek, a right-hand tributary to Walnut River, in Butler and Sedgwick counties	Wichita.
Fournile ; creek, a small right-hand tributary to Neosho River, in Lyon County	Burlington.
Fournile ; creek, a right-hand branch of Neosho River, in Morris County.	{ Eskridge. Parkerville.
Fournile ; creek, a right-hand branch of Neosho River, in Morris County.	{ Parkerville. Eskridge.
Fournile ; creek, a left-hand branch of Neosho River, in Neosho County	Iola.
Fournile ; creek, a left-hand branch of Bluff Creek, and tributary to Big Blue River, in Pottawatomie County	Marysville.
Fournile ; creek, a left-hand branch of Republican River, in Riley County	Junction City.
Fourth ; creek, a right-hand branch of Solomon River, in Mitchell County	Minneapolis.
Fourth ; creek, a left-hand branch of Salt Creek, in Mitchell County	Beloit.
Fowler ; post village and station on Chicago, Rock Island and Pacific Railway, in Fowler Township, Meade County; altitude 2,585 feet	Meade.
Fowler ; township in Meade County; area, 104 square miles; population, 242	Meade.
Fowler ; creek, a right-hand branch of Cottonwood River, in Lyon County	Emporia.
Fox ; post village in Harper County.	
Fox ; creek, a left-hand branch of Cottonwood River, in Chase County	Cottonwood Falls.
Fragrant Hill ; township in Dickinson County; area, 30 square miles; population, 583	Clay Center.
Francis ; post village in Ness County.	
Frankfort ; city in Vermillion Township, Marshall County, on Missouri Pacific Railway; altitude, 1,141 feet; population, 1,051	Seneca.
Franklin ; eastern county; organized, 1857; area, 576 square miles; population, 21,835; county seat, Ottawa; mean magnetic declination, 9° 00'; rainfall, 35 inches; temperature, 54°.	{ Burlingame. Lawrence. Burlington. Garnett.

The surface is a plain somewhat eroded by streams and treeless except in valleys. It is drained by Osage River. The elevation ranges from 800 to 1,100 feet. It is an agricultural county, half its area being under cultivation, mainly in corn. It is traversed by branches of the Atchison, Topeka and Santa Fe and Missouri Pacific railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Appanoose	30	630
Centropolis	39	1,050
Cutler	43	828
Franklin	36	1,232
Wellsville		428
Greenwood	30	712
Harrison	29	688
Hayes	30	708
Homewood	25	709
Lincoln	32	615
Ohio	43	915
Ottawa	48	8,624
Ottawa		7,532
Peoria	36	982
Pomona	21	984
Pomona		561
Pottawatomie	39	979
Richmond	35	869
Williamsburg	60	1,310

Atlas sheets.

- Franklin**; village in Wakarusa Township, in Douglas County. Lawrence.
- Franklin**; township in Bourbon County; area, 72 square miles; population, 1,348. { Fort Scott.
Iola.
Garnett.
Mound City.
- Franklin**; township in Edwards County; area, 72 square miles; population, 363. Kinsley.
- Franklin**; township in Franklin County; area, 36 square miles; population, 1,232. Lawrence.
- Franklin**; township in Jackson County; area, 30 square miles; population, 3,804. Topeka.
- Franklin**; township in Lincoln County; area, 36 square miles; population, 455. Ellsworth.
- Franklin**; township in Marshall County; area, 36 square miles; population, 742. { Marysville.
Seneca.
- Franklin**; township in Ness County; area, 144 square miles; population, 433. Ness.
- Franklin**; township in Trego County; area, 100 square miles; population, 117.
- Franklin**; township in Washington County; area, 36 square miles; population, 813. { Marysville.
Washington.
- Franklinville**; post village in Ness County.
- Fred**; post village in Marion County.
- Frederick**; city on Missouri Pacific Railway, in Eureka Township, Rice County; population, 123 (1890); altitude, 1,748 feet.
- Fredonia**; city in Center Township; county seat of Wilson County; on St. Louis and San Francisco Railway, and Atchison, Topeka and Santa Fe Railway; altitude, 864 feet; population, 1,664. Fredonia.
- Freedom**; township in Bourbon County; area, 44 square miles; population, 839. { Fort Scott.
Mound City.
- Freedom**; post village in Butler County.
- Freedom**; township in Ellis County; area, 45 square miles; population, 325. Hays.

Atlas sheets.

- Freedom**; township in Phillips County; area, 36 square miles; population, 382..... Phillipsburg.
- Freedom**; township in Republic County; area, 36 square miles; population, 583..... Concordia.
- Freeman**; post village in Stafford County.
- Freeport**; city in Silver Creek Township, on Missouri Pacific Railway, in Harper County; altitude, 1,338 feet; population, 74..... Caldwell.
- Free Will**; hamlet in Delhi Township, Osborne County..... Osborne.
- Fremont**; post-office and station on Missouri Pacific Railway, in Union Township, McPherson County; altitude, 1,382 feet.. Salina.
- Fremont**; township in Lyon County; area, 72 square miles; population, 1,079. { Emporia.
Eskridge.
- Friend**; post village in Scott County.
- Friendship**; post village in Cherokee County.
- Frog**; creek, a right-hand tributary to Marais des Cygnes Creek { Burlington.
in Osage and Coffey counties. { Burlingame.
- Frontenac**; city in Crawford County; population, 1,052.
- Fuller**; post village in Crawford County.
- Fullerton**; post village on Atchison, Topeka and Santa Fe Railway, in Hodgeman County; altitude, 1,097 feet.
- Fulton**; city in Freedom Township, on Kansas City, Fort Scott and Memphis Railway, in Bourbon County; altitude, 815 feet; population, 490..... Mound City.
- Funston**; post village in Allen County.
- Furley**; post village and station on Chicago, Rock Island and Pacific Railway, in Lincoln Township, Sedgwick County; altitude, 1,414 feet..... Wichita.
- Gage**; post village in Kingman County.
- Galatia**; post-office in Fairview Township, Barton County.... Russell.
- Gale**; township in Marion County; area, 34 square miles; population, 696..... Newton.
- Galena**; city in Lowell Township, on St. Louis and San Francisco Railway, in Cherokee County; altitude, 870 feet; population, 4,314..... Joplin.
- Galesburg**; post village and station on Missouri, Kansas and Texas Railway, in Centerville Township, Neosho County; altitude, 975 feet..... Parsons.
- Galesburg**; township in Kingman County; area, 36 square miles; population, 534. { Cheney.
Kingman.
- Galt**; post village on Atchison, Topeka and Santa Fe Railway, in Rice County; altitude, 1,635 feet.
- Galt**; township in Rice County; area, 36 square miles; population, 364.
- Galva**; city on Atchison, Topeka and Santa Fe, and Chicago, Rock Island and Pacific Railway, in Empire Township, McPherson County; altitude, 1,546 feet; population, 232... Hutchinson.
- Gannon**; creek, a left-hand branch of Diamond Creek, in Chase County..... Cottonwood Falls.
- Gar**; creek, a left-hand branch of Republican River, in Washington County..... Washington.
- Garden**; township in Cherokee County; area, 34 square miles; population, 2,105..... Joplin.
- Garden**; township in Harper County; area, 36 square miles; population, 236.

	Atlas sheets.
Garden ; township in Harvey County; area, 36 square miles; population, 575.	{ Hutchinson. } Newton
Garden ; city in Garden City Township, Finney County; population, 1,620; altitude, 2,836 feet.	
Garden City ; township in Finney County; area, 162 square miles; population, 2,198	Garden.
Garden Plain ; post village and station on Atchison, Topeka and Santa Fe Railway, in Garden Plain Township, Sedgwick County; altitude, 1,448 feet.	Cheney.
Garden Plain ; township in Sedgwick county; area, 36 square miles; population, 743	Cheney.
Gardner ; city in Gardner Township, on Atchison, Topeka and Santa Fe Railway, in Johnson county; altitude, 1,065 feet; population, 380	Olathe.
Gardner ; township in Johnson County; area, 45 square miles; population, 1,360	Olathe.
Garfield ; post village and station on Atchison, Topeka and Santa Fe Railway, in Garfield Township, Pawnee County; altitude, 2,075 feet	Larned.
Garfield ; township in Clay County; area, 36 square miles; population, 633.	{ Clay Center. } Washington.
Garfield ; township in Decatur County, area, 36 square miles; population, 236.	
Garfield ; township in Dickinson County; area, 36 square miles; population, 436	Abilene.
Garfield ; township in Ellsworth County; area, 132 square miles; population, 815	Ellsworth.
Garfield ; township in Finney County; area, 430.5 square miles; population, 236.	
Garfield ; township in Jackson County; area, 34 square miles; population 974.	
Garfield ; township in Kiowa County; area, 36 square miles; population, 54.	
Garfield ; township in Morris County; area, 36 square miles; population, 647	Eskridge.
Garfield ; township in Norton County; area, 36 square miles; population, 402	Norton.
Garfield ; township in Ottawa County; area, 36 square miles; population, 421	Minneapolis.
Garfield ; township in Pawnee County; area, 81 square miles; population, 404	Larned.
Garfield ; township in Rush County; area, 54 square miles; population, 329	Larned.
Garfield ; township in Seward County; area, 108 square miles; population, 14.	
Garfield ; township in Smith County; area, 36 square miles; population, 323	Smith Center.
Garfield ; township in Wabaunsee County; area, 45 square miles; population, 678.	
Garland ; post village and station on Kansas City, Fort Scott and Memphis Railway, in Drywood Township, Bourbon County	Fort Scott.
Garlington ; post village in Franklin County.	

Hill.

Atlas sheets.

- Genda Springs**; city in Walton Township, Sumner County; on St. Louis and San Francisco Railway; population, 114; altitude, 1,146 feet Wellington.
- Gideon**; post village in Douglas County.
- Giffillan**; post village in Marmaton Township, Bourbon County. Fort Scott.
- Gill**; township in Clay County; area, 30 square miles; population, 474 Clay Center.
- Gillion**; creek, a left-hand branch of Whitewater River, in Butler County. (Called Bakers Creek on El Dorado sheet.) { Eldorado.
Wichita.
- Gilman**; township in Nemaha County; area, 36 square miles; population, 1,056 Hiawatha.
- Gilmore**; creek, a right-hand branch of Neosho River, in Morris County Parkerville.
- Girard**; city in Crawford Township, county seat of Crawford County, on Kansas City, Fort Scott and Memphis and St. Louis and San Francisco railways; population, 2,782; altitude, 983 feet Fort Scott.
- Gladstone**; post village in Rawlins County.
- Gladys**; station on Chicago, Rock Island and Pacific Railway, in Waco Township, Sedgwick County; altitude, 1,275 feet.. Wichita.
- Glasco**; city in Solomon Township; Cloud County; station on Union Pacific Railroad; altitude, 1,318 feet; population, 324. Minneapolis.
- Glencoe**; township in Butler County; area, 60 square miles; population, 607 Eldorado.
- Glencoe**; township in Trego County; area, 36 square miles; population, 135 Ellis.
- Glendale**; post village in Freedom Township, Bourbon County. Fort Scott.
- Glendale**; station on Atchison, Topeka and Santa Fe Railway, in Leecompton Township, Douglas County; altitude, 851 feet..... Oskaloosa.
- Glendale**; township in Saline County; area, 36 square miles; population, 283 Salina.
- Glen Elder**; city in Glen Elder Township, Mitchell County, on Missouri Pacific Railway; altitude, 1,425 feet; population, 376. { Mankato.
Beloit.
- Glen Elder**; township in Mitchell County; area, 36 square miles; population, 1,045. { Mankato.
Beloit.
- Glen Grouse**; post village in Cowley County.
- Glenloch**; post village in Anderson County.
- Glenwood**; post-office in Fairmount Township, Leavenworth County Kansas City.
- Glenwood**; township in Phillips County; area, 36 square miles; population, 291 Phillipsburg.
- Glick**; township in Kiowa County; area, 110 square miles; population, 184. { Kinsley.
Coldwater.
- Globe**; post village in Douglas County.
- Goat**; canyon in Ogallah Township, Trego County Ellis.
- Goddard**; city in Attica Township, Sedgwick County, on Atchison, Topeka and Santa Fe Railway; altitude, 1,468 feet; population, 213 Cheney.
- Godfrey**; post village and station on Kansas City, Fort Scott and Memphis Railway, in Scott Township, Bourbon County; altitude, 964 feet..... Fort Scott.
- Goessel**; post village in Marion County.

Atlas sheets.

- Goffa**; city in Harrison Township, Nemaha County, on Missouri Pacific Railway; altitude, 1,203 feet; population, 359..... Hiawatha.
- Gognac**; post village in Stanton County.
- Golden**; post village in Grant County.
- Golden Belt**; township in Lincoln County; area, 36 square miles; population, 303 Ellsworth.
- Goode**; post village in Phillips County.
- Good Intent**; post village in Atchison County.
- Goodland**; city on Chicago, Rock Island and Pacific Railway, in Itasca Township, county seat of Sherman County; magnetic declination, $11^{\circ} 40'$; altitude, 3,688 feet; population, 1,018.
- Goodrich**; post village on Missouri, Kansas and Texas Railway, in Linn County; altitude, 894 feet.
- Goodwater**; post village in Gove County.
- Goose**; creek, a left-hand branch of Sand Creek, in Kingman County Anthony.
- Goose**; creek, a right-hand branch of Silver Creek, and tributary to North Fork of Ninescah River, in Reno County.... Kingman.
- Gooseberry**; creek, a left-hand branch of Jester Creek, and tributary to Little Arkansas River, in Sedgwick and Harvey counties Wichita.
- Gordon**; post village in Butler County.
- Gordon**; creek, a left-hand tributary to Elk River, in Montgomery County Independence.
- Gore**; township in Sumner County; area, 30 square miles; population, 882..... Wellington.
- Gorham**; post village and station on Union Pacific Railway, in Big Creek Township, Russell County; altitude, 1,945 feet .. Hays.
- Goshen**; township in Clay County; area, 36 square miles; population, 632. { Clay Center.
Washington.
Marysville.
Junction City.
- Goss**; station on Missouri Pacific Railway, Eagle Township, in Harper County..... Anthony.
- Gould**; post village in Richland Township, Rooks County..... Hill.
- Gove**; city in Gove Township, county seat of Gove County; population, 140.
- Gove**; western county; organized in 1886; area, 1,080 square miles; population, 2,043; county seat, Gove; mean magnetic declination, $11^{\circ} 40'$; rainfall, 20 inches; temperature, 53° .
- The surface is a treeless plain, drained by Smoky Hill River and its branches. The elevation ranges from 2,500 to 3,000 feet. Little of its area is under cultivation. It is crossed by a branch of the Union Pacific Railway.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Baker	126	292
Gove	135	315
Gove		140
Grainfield	72	210
Grinnell	180	448
Jerome	144	205
Larahee	144	156
Lewis	144	134
Payne	126	255

Atlas sheets.

Gove; township in Gove County; area, 135 square miles; population, 345.

Gove; township in Pratt County; area, 36 square miles; population, 139.

Pratt.
Medicine Lodge.
Kingman.
Anthony.

Gradan; post village in Graham County.

Grafton; post village in Chautauqua County.

Graham; northwestern county; organized in 1880; area, 900 square miles; population, 4,020; county seat, Hill; mean magnetic declination, 11° 00'; rainfall, 22 inches; temperature, 52°.

The surface is a rolling, treeless plain, drained by East Fork of Solomon River. The elevation ranges from 1,900 to 2,500 feet. But a small proportion of its area is cultivated, mainly in corn. It is traversed by a branch of the Union Pacific Railway.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Allodium.....	67	352
Bryant.....	90	290
Gettysburg.....	90	332
Graham.....	72	343
Happy.....	90	174
Hill City.....	44	514
Hill.....		309
Indiana.....	67	362
Millbrook.....	44	207
Morlan.....	110	342
Nicodemus.....	34	313
Pioneer.....	63	318
Solomon.....	72	218
Wild Horse.....	50	255

Atlas sheets.

Graham; township in Graham County; area, 72 square miles; population, 343.

Hill.
Norton.

Grainfield; city in Grainfield Township, Gove County, on Union Pacific Railway; altitude, 2,813 feet; population, 99 (1890).

Grainfield; township in Gove County; area, 72 square miles; population, 210.

Granada; post village in Nemaha County.

Granada; township in Nemaha County; area, 36 square miles; population, 712.

Hiawatha.

Grand Haven; post-office in Auburn Township, Shawnee County.

Burlingame.

Grand River; township in Sedgwick County; area, 36 square miles; population, 410.

Cheney.

Grand Summit; post village and station on Atchison, Topeka and Santa Fe Railway, in Windsor Township, Cowley County; altitude, 1,438 feet.

Burden.

Grand View; station on Atchison, Topeka and Santa Fe Railway, in Diamond Valley Township, Morris County.

Packerville.

Atlas sheets.

- Grandview**; township in Ford County; area, 85 square miles; population, 637 Spearville.
- Grandview**; township in Morris County; area, 66 square miles; population, 565.
- Granger**; creek, a left-hand branch of Bluff Creek, in Clark County Ashland.
- Granite**; township in Phillips County; area, 36 square miles; population, 486. { Phillipsburg.
Norton.
- Granny**; branch, a small right-hand branch of Big Bull Creek, in Miami County Olathe.
- Grant**; southwestern county; organized, 1888; area, 576 square miles; population, 494; county seat, Ulysses; mean magnetic declination, 10° 50'; rainfall, 18 inches; temperature, 55°.

The surface is a treeless plain, sandy in the north and drained by Cimarron River. Little of its area is under cultivation.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Howard	108	11
Lincoln	144	130
Ulysses		37
Sheridan	108	19
Sherman	108	132
Sullivan		78
Thomas	108	124

Atlas sheets.

- Grant**; township in Barton County; area, 36 square miles; population, 321. { Russell.
Hays.
- Grant**; township in Crawford County; area, 56 square miles; population, 1,208. { Joplin.
Fort Scott.
Parsons.
Iola.
- Grant**; township in Clay County; area, 31 square miles; population, 349. { Clay Center.
Junction City.
- Grant**; township in Cloud County; area, 36 square miles; population, 772 Concordia.
- Grant**; township in Cowley County; area, 55 square miles; population, 321 Burden.
- Grant**; township in Decatur County; area, 36 square miles; population, 348.
- Grant**; township in Dickinson County; area, 36 square miles; population, 3,921 Abilene.
- Grant**; township in Douglas County; area, 18 square miles; population, 555 Oskaloosa.
- Grant**; township in Harper County; area, 36 square miles; population, 436 Anthony.
- Grant**; township in Jackson County; area, 62 square miles; population, 1,280. { Topeka.
Wamego.
- Grant**; township in Jewell County; area, 36 square miles; population, 713. { Mankato.
Concordia.
- Grant**; township in Lincoln County; area, 36 square miles; population, 474 Beloit.

Atlas sheets.

Grant ; township in Marion County; area, 70 square miles; population, 601	Cottonwood Falls.
Grant ; township in Neosho County; area, 48 square miles; population, 1,335	Iola.
Grant ; township in Norton County; area, 54 square miles; population, 588	Norton.
Grant ; township in Osage County; area, 40 square miles; population, 4,368.	
Grant ; township in Osborne County; area, 36 square miles; population, 370.	{ Smith Center. Phillipsburg. Osborne. Plainville.
Grant ; township in Ottawa County; area, 36 square miles; population, 283.	{ Minneapolis. Clay Center.
Grant ; township in Pawnee County; area, 72 square miles; population, 170	Larned.
Grant ; township in Pottawatomie County; area, 30 square miles; population, 803.	
Grant ; township in Pratt County; area, 36 square miles; population, 354.	{ Pratt. Medicine Lodge.
Grant ; township in Rawlins County; area, 36 square miles; population, 95.	
Grant ; township in Reno County; area, 42 square miles; population, 1,634.	{ Lyons. Hutchinson.
Grant ; township in Republic County; area, 36 square miles; population, 698.	{ Washington. Concordia.
Grant ; township in Riley County; area, 38 square miles; population, 491	Junction City.
Grant ; township in Sedgwick County; area, 36 square miles; population, 655	Wichita.
Grant ; township in Sherman County; area, 144 square miles; population, 450.	
Grant ; township in Washington County; area, 36 square miles; population, 716	Washington.
Grant ; post village in Riley County.	
Grant ; creek, a left-hand branch of Big Cana Creek, in Chautauqua County	Sedan.
Grantville ; post village on Union Pacific Railway, in Jefferson County; altitude, 872 feet.	
Grass ; a hamlet in Rutland Township, Montgomery County ..	Independence.
Grasshopper ; township in Atchison County; area, 54 square miles; population, 1,706.	{ Atchison. Hiawatha.
Grasshopper ; creek, a large left-hand branch of Kansas River, in Jefferson, Atchison, Jackson, and Brown counties; length, 80 miles.	{ Oskaloosa. Hiawatha. Topeka.
Graves ; post village in Cloud County.	
Gray ; southwestern county; organized, 1887; area, 864 square miles; population, 1,249; county seat, Cimarron; mean magnetic declination, 10° 45'; rainfall, 22 inches; temperature, 55°.	{ Dodge. Garden.

The surface is a treeless plain, most of it covered by sand hills, especially south of Arkansas River, which crosses the county from west to east. The elevation ranges from 2,500 to 2,800 feet. Little of its area is under cultivation. It is crossed by the main line of the Atchison, Topeka and Santa Fe Railway.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Cimarron	96	343
Cimarron		(1895) 224
Footo	120	130
Hess	144	162
Ingalls	62	172
Ingalls		(1895) 67
Logan	120	142
Montezuma	144	120
Richland	72	90
Salem	108	90

Atlas sheets.

- Great Bend**; city in Great Bend Township, county seat of Barton County; population, 2,158; magnetic declination, 9° 50'; altitude, 1,850 feet. It is situated on the north bank of Arkansas River, in the bottom land. It is entered by Atchison, Topeka and Santa Fe and Missouri Pacific railways..... Great Bend.
- Great Bend**; township in Barton County; area, 45 square miles; population, 2,542..... Great Bend.
- Great House**; creek, a right-hand branch of Verdigris River, in Wilson County..... Fredonia.
- Greeley**; city in Walker Township, Anderson County, on Missouri Pacific Railway; population, 438..... Garnett.
- Greeley**; western county; organized, 1888; area, 780 square miles; population, 851; county seat, Tribune; mean magnetic declination, 12° 00'; rainfall, 15 inches; temperature, 54°. { Cheyenne.
Wells.
Granada.

The surface is a treeless plain, little of it being under cultivation. The elevation ranges from 3,500 to 3,900 feet. It is traversed by a branch of the Missouri Pacific Railway.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Colony	360	271
Harrison	196	150
Tribune	224	430
Tribune		89
Horace		92

Atlas sheets.

- Greeley**; township in Saline County; area, 33 square miles; population, 465. { Abilene.
Salina.
- Greeley**; township in Sedgwick County; area, 36 square miles; population, 810..... Cheney.
- Green**; city and station in Highland Township, Clay County; on Union Pacific Railway; altitude, 1,289 feet; population, 207..... Clay Center.
- Green**; station on Atchison, Topeka and Santa Fe Railway, in Gypsum Township, Sedgwick County..... Wichita.
- Green**; township in Pottawatomie County; area, 48 square miles; population, 567..... Junction City.
- Greenbush**; post village in Grant Township, Crawford County. Fort Scott.

Atlas sheets.

- Greene**; township in Harper County; area, 36 square miles; population, 219 Anthony.
- Greene**; township in Sumner County; area, 36 square miles; population, 441 Wellington.
- Greenfield**; township in Elk County; area, 36 square miles; } population, 1,210. { Sedan.
Burden.
- Greenfield**; township in Rooks County; area, 36 square miles; population, 201 Plainville.
- Green Garden**; township in Ellsworth County; area, 36 square miles; population, 518 Ellsworth.
- Greenleaf**; city in Greenleaf Township, Washington County, on Missouri Pacific Railway; altitude, 1,412 feet; population, 691 Marysville.
- Greenleaf**; township in Washington County; area, 36 square miles; population, 1,268. { Marysville.
Washington.
- Greensburg**; city in Center Township, county seat of Kiowa County, on Chicago, Rock Island and Pacific and Atchison, Topeka and Santa Fe railways; altitude, 2,235 feet; population, 306 Kinsley.
- Greenwich**; post village and station on Missouri Pacific Railway, in Payne Township, Sedgwick County; altitude, 1,407 feet Wichita.
- Greenwood**; village in Quincy Township, Greenwood County Fredonia.
- Greenwood**; station on St. Louis and San Francisco Railway, in Twin Grove Township, Greenwood County; altitude, 991 feet Eureka.
- Greenwood**; southeast county; organized, 1862; area, 1,155 square miles; population, 14,827; county seat, Eureka; mean magnetic declination, 9° 25'; rainfall, 32 inches; temperature, 55°. { Eureka.
Emporia.
Eldorado.
Cottonwood Falls.

The surface is an undulating plain, somewhat eroded by streams, and treeless except in the stream valleys. It is drained by Fall River. The elevation ranges from 900 to 1,500 feet. It is an agricultural county, nearly half its area being under cultivation, mainly in corn. It is traversed by branches of the Atchison, Topeka and Santa Fe, Missouri Pacific, and St. Louis and San Francisco railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Bachelor	60	564
Eureka	60	2,659
Eureka		2,060
Fall River	60	936
Janesville	148	1,388
Lane	54	715
Madison	126	1,682
Madison		586
Otter Creek	113	1,030
Pleasant Grove	59	561
Quincy	60	902
Salem	176	257
Salt Springs	74	1,362
Fall River		393
Shell Rock	54	644
South Salem		514
Spring Creek	54	446
Twin Groves	57	1,167
Severy		368

	Atlas sheets.
Greenwood ; township in Franklin County; area, 30 square miles; population, 712.	{ Lawrence.
	{ Burlingame.
Greenwood ; township in Phillips County; area, 36 square miles; population, 303.....	Phillipsburg.
Gregory ; post village in Holmwood Township, in Jewell County.....	Mankato.
Grenola ; city in Greenfield Township, Elk County, on Atchison, Topeka and Santa Fe Railway; altitude, 1,109 feet; population, 603.....	Sedan.
Greystone ; a hamlet in Clifton Township, in Wilson County..	Fredonia.
Gridley ; city in Liberty Township, Coffey County, on Atchison, Topeka and Santa Fe Railway; altitude, 1,031 feet; population, 199.....	Burlington.
Griffin ; post village in Woodson County.	
Grigsby ; post village on Atchison, Topeka and Santa Fe Railway, in Scott County; altitude, 2,923 feet.	
Grinnell ; post village on Union Pacific Railway, in Gove County; altitude, 2,908 feet.	
Grinnell ; township in Gove County; area, 180 squares miles; population, 446.	
Grinter ; post village in Wyandotte County.	
Griswold ; post village in Sherman County.	
Grouse ; creek, a left-hand branch of Arkansas River, in Cowley County.....	Burden.
Grove ; township in Reno County; area, 36 square miles; population, 423.....	Kingman.
Groveland ; post village and station on Chicago, Rock Island and Pacific Railway, in Groveland Township, McPherson County; altitude, 1,488 feet.....	Hutchinson.
Groveland ; township in McPherson County; area, 36 square miles; population, 592.....	Hutchinson.
Guelph ; post village in Sumner County.	
Guelph ; township in Sumner County; area, 54 square miles; population, 666.....	Wellington.
Guilford ; post-office in Guilford Township, Wilson County....	Fredonia.
Guilford ; township in Wilson County; area, 36 square miles; population, 660.....	Fredonia.
Guittard ; post-office in Guittard Township, Marshall County..	Seneca.
Guittard ; township in Marshall County; area, 36 square miles; population, 1,174.....	Seneca.
Gurney ; post village in Cheyenne County.	
Guy ; post village in Sheridan County.	
Guzzler Gulch ; a left-hand branch of Pawnee Fork, in Ness County.....	Ness City.
Gypsum ; city in Eureka Township, Saline County, on Missouri Pacific Railway; altitude, 1,225 feet; population, 561.	Abilene.
Gypsum ; township in Saline County; area, 36 square miles; population, 434.....	Abilene.
Gypsum ; township in Sedgwick County; area, 50 square miles; population, 664.....	Wichita.
	{ Hutchinson.
Gypsum ; creek, a right-hand branch of Smoky Hill River, in McPherson and Saline counties.	{ Salina.
	{ Abilene.
	{ Newton.

Atlas sheets.

Gypsum ; creek, a left-hand branch of Chisholm Creek and tributary to Arkansas River, in Sedgwick County	Wichita.
Gypsum ; creek, township in McPherson County; area, 36 square miles; population, 480.....	Abilene.
Hackberry ; township in Labette County.....	Parsons.
Hackberry ; creek, a right-hand branch of Bluff Creek, in Clark County	Ashland.
Hackberry ; creek, a small, left-hand tributary to Smoky Hill River, in Wallace and Logan counties.	
Hackberry ; creek, a branch of Salt Fork, in Barber County...	Medicine Lodge.
Hackney ; post village and station on Atchison, Topeka and Santa Fe Railway, in Pleasant Valley Township, Cowley County	Wellington.
Haddam ; city in Haddam Township, Washington County, on Missouri Pacific Railway; altitude, 1,395 feet; population, 277	Washington.
Haddam ; township in Washington County; area, 36 square miles; population, 877	Washington.
Hafer ; run, a left-hand branch of Cheyenne Creek, in Montgomery County	Independence.
Halderman ; creek, a left-hand branch of Verdigris River, in Greenwood County.....	Emporia.
Hale ; post village in Chautauqua County.	
Hale ; township in Thomas County; area, 108 square miles; population, 308.	
Halfday ; creek, a small, left-hand branch of Big Soldier Creek, in Shawnee County	Topeka.
Halford ; post village in Thomas County.	
Halfway ; post village in Cloud County.	
Halifax ; post-office and station on Atchison, Topeka and Santa Fe Railway, in Mill Creek Township, Wabaunsee County ..	Esksridge.
Hallett ; township in Hodgeman County; area, 72 square miles; population, 98.	
Hallowell ; post village and station on St. Louis and San Francisco Railway, in Lola Township, Cherokee County; altitude, 841 feet	Joplin.
Hall Summit ; post-office on Atchison, Topeka and Santa Fe Railway, in Ottumwa Township, Coffee County; altitude, 1,209 feet	Burlington.
Halstead ; city in Halstead Township, Harvey County, on Atchison, Topeka and Santa Fe Railway; altitude, 1,395 feet; population, 764.	{ Cheney. Hutchinson.
Halstead ; township in Harvey County; area, 36 square miles; population, 1,446.	{ Cheney. Hutchinson. Wichita. Newton.
Ham ; creek, forks of Elk River, in Elk County	Eureka.
Hamden ; station on St. Louis and San Francisco Railway, in Guelph Township, Sumner County	Wellington.
Hamilton ; city on Atchison, Topeka and Santa Fe Railway, in Janesville Township, Greenwood County; population, 206..	Eureka.

Granada.
Albany.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Bear Creek	174	104
Coolidge	117	534
Coolidge		241
Kendall	90	117
Kendall		(1895) 25
Lamont	162	42
Liberty	98	56
Medway	108	158
Richland	165	67
Syracuse	81	651
Syracuse		421

Hamilton ; township in Ellis County; area, 107 square miles; population, 431.	{ Plainville. Hill.
Hamlin ; city and station on St. Joseph and Grand Island Railway, in Hamlin Township, Brown County; altitude, 980 feet; population, 176.....	Hiaawatha.
Hamlin ; township in Brown County; area, 42 square miles; population, 1,136.....	Hiaawatha.
Hammond ; post village and station on Kansas City, Fort Scott and Gulf Railway, in Osage Township, Bourbon County....	Fort Scott.
Hampden ; village in Hampden Township, Coffey County.....	Burlington.
Hampden ; township in Coffey County; area, 30 square miles; population, 615	Burlington.
Hampton ; post village in Rush County.	
Hampton ; township in Rush County; area, 48 square miles; population, 442.	{ Hays. Ellis.
Hancock ; township in Osborne County; area, 36 square miles; population, 304.....	Osborne.
Handy ; hamlet in Bloom Township, Osborne County.....	Osborne.
Hanover ; city in Hanover Township, Washington County, on Burlington and Missouri River and St. Joseph and Grand Island Railways; altitude, 1,225 feet; population, 881.....	Marysville.
Hanover ; township in Lincoln County; area, 36 square miles; population, 336.....	Beloit.
Hanover ; township in Washington County; area, 36 square miles; population, 1,657.....	Marysville.
Hanson ; creek, a left-hand branch of Deer Creek, in Phillips county.	Phillipsburg.
Hanston ; post village on Atchison, Topeka and Santa Fe Railway in Hodgeman County; altitude, 2,152 feet.	
Happy ; post village in Graham County.	
Happy ; township in Graham County; area, 90 square miles; population, 174.	

Atlas sheets.

- Hardfish**; creek, a right-hand branch of Osage River, in Franklin County..... Lawrence.
- Hardilee**; post village in Smith County.
- Harding**; post village in Bourbon County.
- Hardscrabble**; creek, a right-hand branch of Solomon River, in Mitchell County..... Beloit.
- Hardtner**; post village in Elwood Township, Barber County.. Medicine Lodge.
- Hargrave**; post village in Rush County.
- Harlan**; city on Missouri Pacific Railway, in Harlan Township, Smith County; altitude, 1,584 feet; population, 109..... Smith Center.
- Harlan**; township in Decatur County; area, 72 square miles; population, 549.
- Harlan**; township in Smith County; area, 36 square miles; population, 454..... Smith Center.
- Harmon**; township in Sumner County; area, 30 square miles; population, 484..... Wellington.
- Harmony**; post village in Pawnee County.
- Harmony**; township in Stevens County; area, 54 square miles; population, 102.
- Harper**; city on Atchison, Topeka and Santa Fe Railway, in Banner Township, Harper County; altitude, 1,424 feet; population, 1,147..... Anthony.
- Harper**; southern county; organized, 1873; area, 810 square miles; population, 9,235; county seat, Anthony; mean magnetic declination, 9° 10'; rainfall, 28 inches; temperature, 57°..... Anthony.
Caldwell.

The surface is a treeless plain, rising into hills in the northern and southern parts, drained by small tributaries to Arkansas River. The elevation ranges from 1,200 to 1,800 feet. It is an agricultural county, more than half of its area being under cultivation. It is traversed by branches of the Atchison, Topeka and Santa Fe, Missouri Pacific, and St. Louis and San Francisco railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Anthony	56	1,624
Anthony		1,074
Banner	36	1,502
Harper		1,147
Berlin	34	218
Blaine	54	262
Chikaskia	54	270
Eagle	54	141
Empire	36	172
Garden	36	236
Grant	36	436
Green	36	219
Harper	18	445
Lake	54	394
Lawn	36	380
Odell	36	541
Pilot Knob	36	442
Ruella	18	469
Attica		269
Silver Creek	36	449
Freeport		74
Spring	54	366
Stohrville	81	669
Bluff		143

Atlas sheets.

- Harper**; township in Harper County; area, 18 square miles; population, 445. { Anthony.
Caldwell.
- Harper**; township in McPherson County; area, 36 square miles; population, 397. { Salina.
Hutchinson.
- Harper**; creek, a right-hand tributary to Eagle Creek, in Lyon County Emporia.
- Harpers**; creek, a left-hand branch of North Cana Creek, in Chautauqua County Sedan.
- Harris**; post village and station on Missouri Pacific Railway, in Anderson County Garnett.
- Harris**; creek, a right-hand branch of Nemaha River, in Nemaha County. { Hiawatha.
Seneca.
- Harrison**; post village in Jewell County.
- Harrison**; township in Chautauqua County; area, 36 square miles; population, 700. { Sedan.
Burden.
- Harrison**; township in Franklin County; area, 29 square miles; population, 688 Lawrence.
- Harrison**; township in Greeley County; area, 196 square miles; population, 159.
- Harrison**; township in Jewell County; area, 36 square miles; population, 602 Mankato.
- Harrison**; township in Nemaha County; area, 36 square miles; population, 1,209. { Seneca.
Hiawatha.
- Harrison**; township in Norton County; area, 36 square miles; population, 448.
- Harrison**; township in Wallace County; area, 81 square miles; population, 182.
- Harrisonville**; hamlet in Independence Township, Montgomery County Independence.
- Hartford**; city on Missouri, Kansas and Texas Railway, in Elmendorf Township, Lyon County; altitude, 1,083 feet; population, 558 (1895) Burlington.
- Hartland**; city on Atchison, Topeka and Santa Fe Railway, in Hartland Township, county seat of Kearny County; altitude, 3,056 feet; population, 103.
- Hartland**; township in Kearny County; area, 138 square miles; population, 94.
- Hartsook**; township in Ellis County; area, 30 square miles; population, 673 Hays.
- Harvey**; Central County; organized, 1872; area, 540 square miles; population, 16,238; county seat, Newton; mean magnetic declination, 9° 25'; rainfall, 28 inches; temperature, 55°. { Newton.
Hutchinson.
Cheney.
Wichita.

The surface is a level, treeless plain. The elevation ranges from 1,400 to 1,500 feet. Nearly three-fourths its area are under cultivation, largely in corn and wheat. It is traversed by branches of the Missouri Pacific and Atchison, Topeka and Santa Fe Railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Alta.....	36	601
Burton.....	36	961
Burton.....		517
Darlington.....	36	541
Emma.....	36	710
Hesston.....		73
Garden.....	36	575
Halstead.....	36	1,446
Halstead.....		764
Highland.....	36	534
Lake.....	36	485
Lakin.....	36	878
Macon.....	36	626
Newton.....	36	5,804
Newton.....		5,193
Pleasant.....	36	647
Richland.....	36	486
Sedgwick.....	36	1,234
Sedgwick.....		612
Walton.....	36	690
Walton.....		186

Atlas sheets.

- Harvey**; township in Cowley County; area, 60 square miles; population, 539 Burden.
- Harvey**; township in Smith County; area, 36 square miles; population, 583 Smith Center.
- Harvey**; creek, a left-hand branch Gypsum Creek, in Saline County Abilene.
- Harveyville**; post village and station on Atchison, Topeka and Santa Fe Railway, in Wilmington Township, Wabaunsee County; altitude, 1,113 feet Burlingame.
- Haskell**; Southwestern County; organized, 1887; area, 576 square miles; population, 580; county seat, Santa Fe; mean magnetic declination, 10° 50'; rainfall, 20 inches; temperature, 55° Garden.

The surface is a treeless plain, in large part covered with sand hills. The elevation ranges from 2,800 to 3,000 feet. Little of the area is under cultivation.

Townships.	Area.	Population.
	<i>Sq. miles.</i>	
Arapahoe.....	64	42
Boone.....	64	60
Dudley.....	64	20
Example.....	64	69
Haskell.....	64	145
Ivanhoe.....	64	53
Lockport.....	64	91
Loco.....	64	37
Review.....	64	63

Atlas sheets.

- Haskell**; post village in Anderson County.
- Haskell**; township in Haskell County; area, 64 square miles; population, 145 Garden.
- Hatton**; post village in Hamilton County.
- Haun**; creek, a right-hand branch of Neosho River, in Morris County Parkerville.
- Havana**; post village on Atchison, Topeka and Santa Fe Railway, in Montgomery County; altitude, 755 feet.
- Haven**; post village on Missouri Pacific Railway, in Haven Township, Reno County Cheney.
- Haven**; township in Reno County; area, 70 square miles; population, 1,351 Cheney.
- Havensville**; city in Grant Township, Pottawatomie County, on Union Pacific Railway; population, 346 Seneca.
- Haverhill**; post village and station on St. Louis and San Francisco Railway, in Spring Township, Butler County; altitude, 1,320 feet Eldorado.
- Haviland**; city in Wellsford Township, Kiowa County, on Chicago, Rock Island and Pacific and Atchison, Topeka and Santa Fe railways; altitude, 2,162 feet Kinsley.
- Hawkeye**; township in Osborne County; area, 36 square miles; population, 393. { Osborne.
Smith Center.
- Hawley**; post village in Russell County.
- Haworth**; post village in Republic County.
- Hawthorne**; post village on Atchison, Topeka and Santa Fe Railway, in Atchison County; altitude, 959 feet.
- Hayes**; township in Clay County; area 36 square miles; population, 534 Clay Center.
- Hayes**; township in Dickinson County; area, 30 square miles; population, 494. { Abilene.
Clay Center.
- Hayes**; township in Franklin County; area, 30 square miles; population, 708 Lawrence.
- Hayes**; township in McPherson County; area, 36 square miles; population, 596 Hutchinson.
- Hayes**; township in Mitchell County; area, 36 square miles; population, 417 Beloit.
- Hayes**; township in Reno County; area, 72 square miles; population, 599 Lyons.
- Hayes**; township in Stafford County; area, 36 square miles; population, 350 Great Bend.
- Haynesville**; township in Pratt County; area, 63 square miles; population, 659. { Pratt.
Kingman.
- Hays**; city in Big Creek Township, county seat of Ellis County, on Union Pacific Railway; magnetic declination, 11° 00'; population, 979; altitude, 1,999 feet Hays.
- Haysville**; post village in Sedgwick County.
- Hazelton**; city in Hazelton Township, Barber County, on Atchison, Topeka and Santa Fe and Missouri Pacific railways; altitude, 1,371 feet; population, 193 Anthony.
- Hazelton**; township in Barber County; area, 36 square miles; population, 530 Anthony.
- Healy**; post village on Missouri Pacific Railway, in Lane County; altitude, 2,852 feet.
- Heber**; post village in Cloud County.
- Hector**; post village in Johnson County.

Atlas sheets.

- Hedgewood**; post village in Norton County.
- Heizer**; post village and station on Atchison, Topeka and Santa Fe Railway, in Buffalo Township, Barton County; altitude, 1,888 feet Great Bend.
- Hell**; creek, a right-hand branch of Saline River, in Lincoln and Russell counties Ellsworth.
 { Russell.
- Helmick**; post village on Missouri Pacific Railway, in Morris County; altitude, 1,364 feet.
- Hendricks**; township in Chautauqua County; area, 56 square miles; population, 785 Sedan.
- Hendricks**; creek, a left-hand branch of Mill Creek, in Wabaunsee County Wamego.
- Henry**; post village in Sheridan County.
- Henry**; township in Ottawa County; area, 36 square miles; population, 292 Minneapolis.
- Henry**; creek, a tributary to Whitewater River, in Butler County. Newton.
 { Wichita.
- Hepler**; city in Walnut Township, Crawford County, on Missouri, Kansas and Texas Railway; altitude, 998 feet; population, 270 Fort Scott.
- Herbert**; creek, a right-hand branch of Mill Creek, in Washington County Marysville.
- Herington**; city in Lyon Township, Dickinson County, on Missouri Pacific and Chicago, Rock Island and Pacific railways; altitude, 1,328 feet; population, 1,534 Parkerville.
- Herkimer**; post-office and station on St. Joseph and Grand Island Railway, in Herkimer Township, Marshall County.. Marysville.
- Herkimer**; township in Marshall County; area, 72 square miles; population, 633 Marysville.
- Hermes**; creek, a left-hand branch of Solomon River, in Mitchell County. Beloit.
 { Mankato.
- Herndon**; post village on Burlington and Missouri River Railway, in Rawlins County; altitude, 2,660 feet.
- Herndon**; township in Rawlins County; area, 48 square miles; population, 490.
- Hertha**; post village on Kansas City and Pacific Railway, in Neosho County; altitude, 941 feet.
- Herzog**; village in Herzog Township, Ellis County Hays.
- Hesper**; post village in Endora Township, in Douglas County. Lawrence.
- Hess**; township in Gray County; area, 144 square miles; population, 162 Dodge.
- Hesston**; city in Emma Township, Harvey County, on Missouri Pacific Railway; altitude, 1,483 feet; population, 73 Newton.
- Hewins**; city on Atchison, Topeka and Santa Fe Railway, in Hendricks Township, Chautauqua County; altitude, 875 feet; population, 67.
- Hiattville**; city in Pawnee Township, Bourbon County, on Kansas City, Fort Scott and Memphis Railway; altitude, 988 feet; population, 146 (1895) Fort Scott.
- Hiawatha**; township in Brown County; area, 63 square miles; population, 5,082. Atchison.
 { Hiawatha.
- Hiawatha**; city in Hiawatha Township, Brown County, on the St. Joseph and Grand Island Railway; altitude, 1,091 feet; population, 3,062.

Atlas sheets.

- Hibbard**; township in Kearny County; area, 156 square miles; population, 55.
- Hickman**; a hamlet in Salt Springs Township, in Greenwood County Eureka.
- Hickory**; township in Butler County; area, 60 square miles; population, 431 Eldorado.
- Hickory**; creek, a left-hand branch of Osage River, in Franklin County Lawrence.
- Hickory**; creek, a small left-hand branch of Neosho River, in Coffey County Burlington.
- Hickory**; creek, a left-hand branch of Little Walnut Creek, in Butler County Eldorado.
- Hickory**; creek, a left-hand branch of Neosho River, in Labette, Neosho, and Crawford counties Parsons.
- Hickory**; creek, a left-hand branch of Elk River, in Elk County Independence.
- Higby**; creek, a small left-hand branch of Mission Creek, in Osage County Eskridge.
- High Bridge**; post village in Atchison County.
- High Hill**; hamlet in Medicine Township, Rooks County Plainville.
- Highland**; city on Burlington and Missouri River Railway, in Iowa Township, Doniphan County; altitude, 887 feet; population, 639 Atchison.
- Highland**; township in Clay County; area, 36 square miles; population, 806. { Clay Center.
Junction City.
- Highland**; township in Harvey County; area, 36 square miles; population, 554 Newton.
- Highland**; township in Jewell County; area, 36 square miles; population, 582 Mankato.
- Highland**; township in Lincoln County; area, 36 square miles; population, 293 Ellsworth.
- Highland**; township in Morris County; area, 36 square miles; population, 420 Parkerville.
- Highland**; township in Norton County; area, 36 square miles; population, 204.
- Highland**; township in Washington County; area, 36 square miles; population, 393 Washington.
- Highpoint**; post village in Ness County.
- Highpoint**; township in Ness County; area, 120 square miles; population, 324 Ness.
- High Prairie**; township in Leavenworth County; area, 48 square miles; population, 1,117. { Oskaloosa.
Kansas City.
- Hill**; city in Hill City Township, county seat of Graham County, on Union Pacific Railway; altitude, 2,134 feet; population, 309 Hill.
- Hill**; creek, a right-hand branch of Marias des Cygnes Creek, in Lyon County. { Eskridge.
Burlingame.
- Hill City**; township in Graham County; area, 40 square miles; population, 514 Hill.
- Hillboro**; city in Risley Township, Marion County, on Atchison, Topeka and Santa Fe Railway; altitude, 1,433 feet; population, 616 Newton.
- Hillsdale**; post village and station on Kansas City, Fort Scott and Memphis Railway, in Marysville Township, Miami County; altitude, 905 feet Olathe.

Atlas sheets.

- Hillside**; post village in Phillips County.
- Hilltop**; post village on Atchison, Topeka and Santa Fe Railway, in Greenwood County; altitude, 1,019 feet.
- Hobart**; township in Rooks County; area, 36 square miles; population, 192..... Plainville.
- Hobbs**; creek, a right-hand branch of Gypsum Creek, in Saline County..... Abilene.
- Hodgeman**; western county; organized, 1879; area, 864 square miles; population, 1,860; county seat, Jetmore; mean magnetic declination, 10° 20'; rainfall, 22 inches; temperature, 54°..... { Ness.
Spearville.
Dodge.

The surface is an undulating, treeless plain, ranging in elevation from 2,100 to 2,500 feet. Only a small portion of its area is under cultivation. It is traversed by a branch of the Atchison, Topeka and Santa Fe Railway.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Benton.....	36	63
Center.....	144	527
Jetmore.....		266
Hallet.....	72	98
Marena.....	144	369
North Roscoe.....	108	113
Sawlog.....	72	124
South Roscoe.....	72	85
Sterling.....	144	354
Valley.....	72	127

Atlas sheets.

- Hodgeman**; post village in Hodgeman County.
- Hog**; creek, a small left-hand branch of Big Stranger Creek, in Leavenworth County..... Kansas City.
- Hog**; creek, a tributary to west branch (of Fall River), in Butler and Greenwood counties..... Eldorado.
- Hoganville**; post village in Graham County.
- Hogback**; station on Union Pacific Railway, in Ellis Township, Ellis County; altitude, 2,060 feet..... Hays.
- Hoge**; post-office and station on Union Pacific Railway, in Stranger Township, Leavenworth County; altitude, 856 feet. Kansas City.
- Hoisington**; city in Homestead Township, Barton County, on Missouri Pacific Railway; altitude, 1,820 feet; population, 535..... Russell.
- Holbrook**; post village on Missouri Pacific Railway, in Hodgeman County; altitude, 2,207 feet.
- Holland**; post village in Wheatland Township, Dickinson County..... Abilene.
- Holland**; township in Dickinson County; area, 36 square miles; population, 377..... Abilene.
- Hollenberg**; city in Franklin Township, Washington County, on St. Joseph and Grand Island Railway; altitude, 1,256 feet; population, 181..... Marysville.
- Holliday**; post-office and railway station on Atchison, Topeka and Santa Fe Railway, in Monticello Township, Johnson County; altitude, 760 feet..... Kansas City.

Atlas sheets.

- Holling**; post village in Douglas County.
- Hollis**; post village on Burlington and Missouri River Railway, in Cloud County; altitude, 1,337 feet.
- Holman**; post village in Bourbon County.
- Holmwood**; township in Jewell County; area, 36 square miles; population, 557 Mankato.
- Holton**; city in Franklin Township, county seat of Jackson County, on Missouri Pacific and Chicago, Rock Island and Pacific and Union Pacific railways; magnetic declination, 9° 20'; altitude, 1,043 feet; population, 3,040. Topeka.
- Holycross**; post village in Pottawatomie County.
- Holyrood**; post village and station on Atchison, Topeka and Santa Fe Railway, in Valley Township, Ellsworth County; altitude, 1,804 feet Ellsworth.
- Home**; city in Franklin Township, Marshall County, on St. Joseph and Grand Island Railway; population, 134 (1890).. Marysville.
- Home**; township in Nemaha County; area, 54 square miles; population, 1,570 Seneca.
- Homer**; station on Union Pacific Railway, in Russell Township, Russell County; altitude, 1,869 feet Russell.
- Homer**; creek, a left-hand branch of Walnut Creek, in Greenwood County Eureka.
- Homestead**; post village in Chase County.
- Homestead**; township in Barton County; area, 72 square miles; population, 911. { Russell.
Great Bend.
- Homewood**; post village and station on Atchison, Topeka and Santa Fe Railway, in Lincoln Township, Franklin County; altitude, 1,039 feet Lawrence.
- Homewood**; township in Franklin County; area, 25 square miles; population, 709.
- Honey**; creek, a small tributary to Missouri River, 2 miles long, in Wyandotte County. Kansas City.
- Honey**; creek, a left-hand branch of Otter Creek, in Greenwood County Eureka.
- Hooker**; post village in Decatur County.
- Hoosier**; post village in Cowley County.
- Hoosier**; township in Kingman County; area, 36 square miles; population, 391. Kingman.
- Hoosier**; creek, a right-hand tributary to Eagle Creek, in Lyon County Emporia.
- Hoover**; creek, a right-hand branch of Wolf Creek, in McPherson County Salina.
- Hope**; city in Hope Township, on Atchison, Topeka and Santa Fe Railway and Missouri Pacific Railway, in Dickinson County; altitude, 1,377 feet; population, 442 Abilene.
- Hope**; township in Dickinson County; area, 36 square miles; population, 1,023. Abilene.
- Horace**; city in Tribune Township, Greeley County; altitude, 3,638 feet; population, 92.
- Horanif**; post-office and station on Kansas City, Wichita and Northwestern Railway, in Wyandotte Township, Wyandotte County; altitude, 1,013 feet. Kansas City.
- Horseshoe**; creek, a right-hand branch of Big Blue River, in Marshall and Washington counties Marysville.

- Atlas sheets.
- Horse**; creek, a right-hand branch of Rock Creek, in Wabaunsee County..... Eskridge.
- Horton**; city in Mission Township, Brown County, a station on Chicago, Rock Island and Pacific and Atchison, Topeka and Santa Fe railways; altitude, 1,192 feet; population, 3,202... Hiawatha.
- Hortonburg**; post village in Lyon County.
- Hosford**; a hamlet in Rutland Township, Montgomery County. Independence.
- Houston**; township in Smith County; area, 36 square miles; population, 350..... Smith Center.
- Howard**; city in Howard Township, county seat of Elk County, on Atchison, Topeka and Santa Fe Railway; altitude, 1,112 feet; population, 1,050 Sedan.
- Howard**; township in Elk County; area, 62 square miles; population, 1,871. { Sedan.
Eureka.
- Howard**; township in Grant County; area, 108 square miles; population, 11.
- Howard**; township in Labette County; area, 46 square miles; population, 786. { Parsons.
Independence.
- Howard**; creek, a small, right-hand tributary to Big Stranger Creek, in Jefferson County Oskaloosa.
- Howell**; post village and station on Atchison, Topeka and Santa Fe Railway, in Fairview Township, Ford County; altitude, 2,544 feet Dodge.
- Hoxie**; city on Union Pacific Railway, in Kenneth Township, county seat of Sheridan County; altitude, 2,654 feet; population, 211.
- Hoyt**; post village and station on Chicago, Rock Island and Pacific Railway, in Douglas Township, Jackson County; altitude, 1,166 feet Topeka.
- Hubbard**; creek, a right-hand branch of Arkansas River, in Pawnee County. { Larned.
Great Bend.
- Huckle**; post village in Sedgwick County.
- Hudson**; post village and station on Missouri Pacific Railway, in Hayes Township, Stafford County; altitude, 1,867 feet.. Great Bend.
- Hugoton**; city in Center Township, county seat of Stevens County; population, 136 (1890).
- Hull**; post village on Union Pacific Railway, in Marshall County; altitude, 1,149 feet.
- Hull**; branch, a small right-hand tributary to Big Stranger Creek, in Jefferson County Oskaloosa.
- Humboldt**; city in Humboldt Township, Allen County; magnetic declination, 8° 50'. It is situated on the left bank of Neosho River, and is a station on the Atchison, Topeka and Santa Fe and Missouri, Kansas and Texas railways; altitude, 960 feet; population, 1,660 Iola.
- Humboldt**; township in Allen County; area, 48 square miles; population, 2,102. { Iola.
Fredonia.
- Humboldt**; creek, a right-hand branch of Clark Creek, in Davis County. { Parkerville.
Junction City.
- Humboldt**; creek, a right hand branch of Clarks Creek, in Davis County. { Junction City.
Parkerville.
- Hund**; post-office and station on Union Pacific Railway, in Kickapoo Township, Leavenworth County Kansas City.
- Hundred and Ten Mile**; creek, a left-hand branch of Dragon Creek, in Osage County Burlingame.

	Atlas sheets.
Hungry ; hollow in Illinois Township, Rush County	Hays.
Hunnewell ; city in South Haven Township, Sumner County, on Atchison, Topeka and Santa Fe Railway; altitude, 1,104 feet; population, 116.....	Wellington.
Huntsville ; township in Reno County; area, 36 square miles; population, 518.....	Lyons.
Huntsville ; post-office in Huntsville Township, in Reno County	Lyons.
Huron ; post village and station on Missouri Pacific Railway, in Atchison County; altitude, 1,157 feet.....	Atchison.
Hurt ; post village in Greeley County.	
Huscher ; post village in Cloud County.	
Hushpuckney ; creek, a right-hand branch of Marias des Cyg- nes River, in Miami and Linn counties.....	Mound City.
Hutchins ; creek, a left-hand branch of Elk River, in Elk County	Sedan.
Hutchinson ; city in Reno Township, county seat of Reno County, on Atchison, Topeka and Santa Fe; Missouri Pacific, and Chicago, Rock Island and Pacific railways; magnetic declination, 9° 30'; altitude, 1,533 feet; population, 8,172....	Hutchinson.
Hymer ; post village in Chase County.	
Iantha ; creek, a left-hand branch of Pottawatomie Creek, in Anderson and Franklin counties.....	Garnett.
Ida ; a hamlet in Rose Creek Township, Republic County	Washington.
Idana ; city and station on Union Pacific Railway, in Five Creeks Township, Clay County; altitude, 1,255 feet; population, 151	Clay Center.
Idell ; post village in Crawford County.	
Idenbro ; post village on Kansas City and Pacific Railway, in Labette County; altitude, 893 feet.	
Igo ; post-office in Medicine Township, Rooks County.....	Plainville.
Illinois ; township in Nemaha County; area, 36 square miles; population, 1,050	Seneca.
Illinois ; township in Rush County; area, 48 square miles; pop- ulation, 285	Hays.
Illinois ; township in Sedgwick County; area, 36 square miles; } population, 416. }	Cheney. Wichita.
Illinois ; township in Sumner County; area, 36 square miles; } population, 424. }	Caldwell. Wellington.
Illinois ; creek, a left-hand branch of Cross Creek, in Jackson } County. }	Wamego. Topeka.
Illinois ; creek, a left-hand branch of Nemaha River, in Nemaha County	Seneca.
Illinois ; creek, a right-hand branch of West Branch Mill Creek, in Wabaunsee County	Esckridge.
Imes ; post village in Franklin County.	
Imperial ; post village in Finney County.	
Independence ; city in Independence Township, county seat of Montgomery County, on Atchison, Topeka and Santa Fe and Missouri Pacific railways; altitude, 816 feet; population, 3,677.....	Independence.
Independence ; township in Montgomery County; area, 70 square miles; population, 5,180	Independence.
Independence ; township in Osborne County; area, 36 square miles; population, 272	Osborne.

Atlas sheets.

- Independence**; township in Washington County; area, 36 square miles; population, 624..... Marysville.
- Independence**; creek, a branch of Missouri River, in Atchison and Doniphan counties; length, 15 miles..... Atchison.
- Independent**; township in Barton County; area, 36 square miles; population, 623..... Russell.
- Indian**; creek, a left-hand branch of Little Osage River, in Bourbon and Linn counties..... Mound City.
- Indian**; creek, a left-hand branch of Salt Fork Creek, in Comanche County..... Coldwater.
- Indian**; creek, a right-hand branch of Fall River, in Elk County..... { Eureka.
Fredonia.
- Indian**; creek, a left-hand branch of Slate Creek, in Greenwood County..... Emporia.
- Indian**; creek, a small right-hand tributary to Big Stranger Creek, in Jefferson County..... Oskaloosa.
- Indian**; creek, a branch of Big Blue River, in Johnson County..... Olathe.
- Indian**; creek, a left-hand branch of Little Osage River, in Linn and Bourbon counties..... Mound City.
- Indian**; creek, a right-hand branch of Nesho River, in Lyon, Morris and Chase counties..... Eskridge.
- Indian**; creek, a right-hand branch of Smoky Hill River, in McPherson County..... { Hutchinson.
Salina.
- Indian**; creek, a right-hand branch of Solomon River, in Mitchell County..... Beloit.
- Indian**; creek, a right-hand branch of South Fork Solomon River, in Osborne County..... Osborne.
- Indian**; creek, a right-hand branch of Vermilion River, in Pottawatomie County..... Wamego.
- Indian**; creek, a small, left-hand branch of Kansas River, in Shawnee County..... Topeka.
- Indiana**; township in Graham County; area, 67 square miles; population, 362..... { Hill.
Norton.
- Indiana**; township in Lincoln County; area, 36 square miles; population, 588..... { Ellsworth.
Beloit.
- Indiana**; creek, a left-hand branch of Neosho River, in Allen County..... { Iola.
Burlington.
- Indian Creek**; township in Anderson County; area, 48 square miles; population, 706..... { Garnett.
Burlington.
- Indianola**; post village in Butler County.
- Indianola**; creek, a right-hand branch of Whitewater River, in Butler and Sedgwick counties..... { Wichita.
Eldorado.
- Industry**; post village in Clay County.
- Ingalls**; city in Ingalls Township, Gray County, on Arkansas River, and on Atchison, Topeka, and Santa Fe Railway; population, 67 (1895)..... Dodge.
- Ingalls**; township in Gray County; area, 62 square miles; population, 172..... { Dodge.
Garden.
- Inman**; city in Superior Township, McPherson County; population, 273.
- Inman**; creek, a branch of Big Mule Creek, in Barber County..... { Medicine Lodge.
Coldwater.
- Invermay**; post village in Atchison County.

Atlas sheets.

Iola ; city in Iola Township, county seat of Allen County. It is situated near the junction of Elks Creek, with Neosho River at the intersection of branches of the Missouri Pacific and Atchison, Topeka and Santa Fe railways; altitude, 956 feet.	Iola.
Iola ; township in Allen County; area, 40 square miles; population, 2,854.	Iola. Fredonia.
Ionia ; city in Ionia Township, in Jewell County; population, 107	Mankato.
Ionia ; township in Jewell County; area, 36 square miles, population, 653	Mankato.
Iowa ; township in Doniphan County; area, 85 square miles, population, 3,908	Atchison.
Iowa ; township in Rooks County; area, 36 square miles; population, 269	Plainville.
Iowa ; township in Sherman County; area, 108 square miles; population, 111.	
Iowa ; creek, a right-hand branch of Mill Creek, in Washington County	Washington.
Iowa Point ; post village and station on Burlington and Missouri River Railway, in Iowa Township, Doniphan County; altitude, 826 feet	Atchison.
Iowaville ; post village in Sedgwick County.	
Irish ; run, a left-hand branch of Verdigris River, in Montgomery County	Independence.
Iron ; mound, hill in Greeley Township, Saline County	Salina.
Irving ; city in Blue Rapids Township, Marshall County, on Union Pacific and Missouri Pacific railways; altitude, 1,092 feet; population, 312	Marysville.
Irving ; township in Brown County; area, 54 square miles; population, 993	Atchison.
Irwin ; township in Comanche County; area, 36 square miles; population, 34.	Coldwater. Clark.
Isabel ; post village and station on Atchison, Topeka and Santa Fe Railway, in Valley Township, Barber County; altitude, 1,848 feet	Medicine Lodge.
Isabel ; township in Scott County; area, 80 square miles; population, 93.	
Island ; post village in Neosho County.	
Island ; creek, a small branch of Missouri River, in Wyandotte County; length, 4 miles	Kansas City.
Itasca ; township in Sherman County; area, 36 square miles; population, 1,161.	
Iuka ; post village and station on Missouri Pacific Railway, in Iuka Township, Pratt County	Pratt.
Iuka ; township in Pratt County; area, 71 square miles; population, 573	Pratt.
Ivanhoe ; township in Finney County; area, 108 square miles; population, 66	Garden.
Ivanhoe ; post village in Ivanhoe Township; Haskell County	Garden.
Ivanhoe ; township in Haskell County; area, 64 square miles; population, 53	Garden.
Ivanpah ; post-office in Salem Township, Greenwood County	Eureka.
Ivanpah ; creek, a right-hand branch of West Branch (of Fall River), in Greenwood and Butler counties	Eureka. Eldorado.
Ivy ; township in Lyon County; area, 31 square miles; population, 680	Eskridge.

Atlas sheets.

Jackson; northeastern county; organized, 1857; area, 658 square miles; population, 16,497; county seat, Holton; mean magnetic declination, 9° 20'; rainfall, 32 inches; temperature, 53°.

Topeka.
Wamego.
Seneca.
Hiawatha.

The Pottawatomie Indian Reserve is located in this county, occupying 120 square miles. The surface of the county is a rolling, treeless plain, having an elevation ranging from 900 to 1,300 feet. The county is agricultural, three-fifths of its area being cultivated, mainly in corn. It is traversed by branches of the Chicago, Rock Island and Union Pacific railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Adrian.....	36	477
Cedar.....	40	1, 107
Douglas.....	65	1, 331
Franklin.....	30	3, 804
Holton.....		3, 040
Garfield.....	34	974
Grant.....	62	1, 280
Jefferson.....	36	1, 272
Circleville.....		287
Liberty.....	36	746
Netawaka.....	36	866
Netawaka.....		266
Soldier.....	42	1, 066
Soldier.....		257
Straight Creek.....	36	679
Washington.....	54	766
Whiting.....	36	1, 129
Whiting.....		404
Pottawatomie Reserve.....	120	Estimated 1, 000

Jackson; township in Anderson County; area, 35 square miles; population, 826 Atlas sheets.
Garnett.

Jackson; township in Edwards County; area, 72 square miles; population, 184. Kinsley.
Larned.
Ness.
Spearville.

Jackson; township in Geary County; area, 40 square miles; population, 299. Parkerville.
Junction City.

Jackson; township in Jewell County; area, 36 square miles; population, 648. Makato.
Concordia.

Jackson; township in Lyon County; area, 88 square miles; population, 1,797. Emporia.
Burlington.

Jackson; township in McPherson County; area, 36 square miles; population, 564 Hutchinson.

Jackson; township in Osborne County; area, 36 square miles; population, 440 Osborne.

Jackson; township in Riley County; area, 35 square miles; population, 865. Junction City.
Marysville.

Jackson; township in Sumner County; area, 36 square miles; population, 491 Wellington.

Jackson; branch, a right-hand tributary to South Fork, Solomon River, in Graham County Hill.

Jacksonburg; post village, in Pleasant Township, Smith County Smith Center.

Jacob; creek, a right-hand branch of Cottonwood River, in Chase and Lyon counties Emporia.

Atlas sheets.

- Jaggard**; post village in Leavenworth County; altitude, 807 feet.
- Jake**; branch, a right-hand branch of Middle Creek, in Miami County Olathe.
- Jamestown**; city in Grant Township, Cloud County, on Missouri Pacific Railway; altitude, 1,420 feet; population, 229. Concordia.
- Janesville**; township in Greenwood County; area, 148 square miles; population, 1,388. { Eureka.
Emporia.
- Jaqua**; post village in Cheyenne County.
- Jaqua**; township in Cheyenne County; area, 48 square miles; population, 190.
- Jarbalo**; post-office on Atchison, Topeka and Santa Fe Railway, in Alexandria Township, Leavenworth County Oskaloosa.
- Jarvis**; creek, a left-hand branch of Cow Creek, in Rice County. Lyons.
- Jasper**; station on Chicago, Rock Island and Pacific Railway, in Eden Township, Meade County; altitude, 2,703 feet Meade.
- Jefferson**; township in Chautauqua County; area, 56 square miles; population, 1,560. { Sedan.
Burden.
- Jefferson**; township in Cheyenne County; area, 36 square miles; population, 79.
- Jefferson**; township in Dickinson County; area, 36 square miles; population, 723 Abilene.
- Jefferson**; township in Geary County; area, 48 square miles; population, 594. { Parkerville.
Junction City.
- Jefferson**; township in Jackson County; area, 36 square miles; population, 1,272. { Topeka.
Hiawatha.
- Jefferson**; township in Jefferson County; area, 58 square miles; population, 1,455 Oskaloosa.
- Jefferson**; northeastern county; organized, 1855; area, 568 square miles; population, 17,619; county seat, Oskaloosa; mean magnetic declination, 8° 30'; rainfall, 33 inches; temperature, 53°. { Oskaloosa.
Topeka.

The surface is a plain, much eroded by streams, and drained by Kansas River and its branches. The elevation ranges from 800 to 1,200 feet. About three-fifths its area is under cultivation, mainly in corn. It is traversed by branches of the Union Pacific and Atchison, Topeka and Santa Fe railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Delaware	89	2,966
Valley Falls		1,155
Fairview	35	822
Jefferson	58	1,455
Winchester		486
Kaw	36	761
Kentucky	46	1,599
Perry		441
Norton	39	1,391
Nortonville		668
Osawkie	42	1,121
Oskaloosa	72	2,388
Oskaloosa		1,006
Rock Creek	55	1,606
Meriden		492
Rural	28	992
Sarcozie	35	709
Union	40	1,424
McLouth		443

Atlas sheets.

- Jefferson**; post village in Montgomery County.
- Jefferson**; township in Rawlins County; area, 48 square miles; population, 150.
- Jefferson**; township in Republic County; area, 36 square miles; population, 782. { Washington.
Concordia.
- Jennings**; post village on Chicago, Rock Island and Pacific Railway, in Decatur County; altitude, 2,488 feet.
- Jennings**; township in Decatur County; area, 36 square miles; population, 362.
- Jerome**; post village in Gove County.
- Jerome**; township in Gove County; area, 144 square miles; population, 205.
- Jersey**; creek, a left-hand branch of Salt Creek, in Osage County Burlingame.
- Jerusalem**; post village in Johnson County.
- Jester**; creek, a left-hand branch of Little Arkansas River, in Sedgwick and Harvey counties Wichita.
- Jesus**; mount, hill, in Lexington Township, Clark County; altitude, 2,340 feet Ashland.
- Jetmore**; city in Center Township, county seat of Hodgeman County, on Atchison, Topeka and Santa Fe Railway; magnetic declination, 10° 55'; altitude, 2,268 feet. Ness City.
- Jewell**; city in Buffalo Township, Jewell County, on Missouri Pacific Railway; magnetic declination, 10° 20'; altitude, 1,564 feet; population, 591 Mankato.
- Jewell**; northern county; organized, 1870; area, 900 square miles; population, 16,632; county seat, Mankato; mean magnetic declination, 10° 15'; rainfall, 25 inches; temperature, 52°. { Mankato.
Smith Center.

The surface is a broken, treeless plain, greatly eroded by streams, with a range in elevation from 1,400 feet in the valleys to 1,800 feet upon the summits. It is an agricultural county, three-fourths of its area being under cultivation, mainly in corn. It is crossed by branches of the Atchison, Topeka and Santa Fe, Missouri Pacific, and Chicago, Rock Island and Pacific railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Allen	36	543
Athens	36	455
Browns Creek	36	533
Burr Oak	36	1,306
Burr Oak		571
Buffalo	40	1,223
Jewell		591
Calvin	32	417
Center	36	1,237
Mankato		712
Erving	36	483
Ezbon	36	650
Grant	36	713
Formosa		144
Harrison	36	602
Highland	36	582
Holmwood	36	557

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Iona	36	653
Iona		107
Jackson	36	648
Webber		67
Limestone	36	724
Otego		71
Montana	36	597
Odesa	36	440
Prairie	36	745
Randall		177
Richland	36	448
Sinclair	36	562
Lovewell		31
Vicksburg	36	565
Walnut	36	698
Washington	36	566
Montrose		71
White Mound	36	685

Jim; creek, a right-hand branch of Vermilion River, in Pottawatomie County..... **Atlas sheets.**
Wamego.

Jingo; post village in Miami County.

Jocelyn; creek, a left-hand branch of Sand Creek and tributary to South Fork of Ninescaw River, in Sedgwick County.... **Cheney.**

Johnson; eastern county; organized, 1855; area, 480 square miles; population, 17,282; county seat, Olathe; mean magnetic declination, 8° 65'; rainfall, 35 inches; temperature, 53°. **Lawrence.**
Olathe.
Kansas City.

The surface is a plain, much broken by erosion, especially in the north, near the valley of Kansas River. The elevation ranges from 750 to 1,000 feet. The valleys are timbered; the uplands mainly treeless. It is drained by Kansas River and its tributaries. It is an agricultural county, about one-half its area being under cultivation, mainly in corn. It is traversed by branches of the Atchison, Topeka and Santa Fe and Kansas City, Fort Scott and Missouri railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Aubry	50	1, 187
Gardner	45	1, 360
Gardner		380
Lexington	65	1, 875
McCamish	45	1, 222
Edgerton		343
Mission	32	849
Monticello	41	1, 414
Oxford	70	1, 386
Olathe	64	4, 489
Olathe		3, 225
Shawnee	36	2, 171
Spring Hill	30	1, 329
Spring Hill		671

Atlas sheets.

- Johnson**; township in Ness County; area, 120 square miles; population, 163.
- Johnson**; city in Stanton Township, county seat of Stanton County; population, 143 (1890).
- Johnson**; creek, a small left-hand branch of Mission Creek, in Osage County Eskridge.
- Johnstown**; post village in McPherson County.
- Jonesburg**; post village in Chautauqua County.
- Jordan**; creek, a right-hand branch of Chicaskia River, in Sumner County Caldwell.
- Judson**; post village in Smith County.
- Julia**; post village in Kingman County.
- Junction**; township in Osage County; area, 48 square miles; population, 1,253 Burlingame.
- Junction**; city in Smoky Hill Township, county seat of Geary County; magnetic declination, 9° 15'; it is situated at the junction of Republican and Smoky Hill rivers and on the Union Pacific and Missouri, Kansas and Texas railways; altitude, 1,078 feet; population, 5,219 Junction City.
- June**; a hamlet in Liberty Township, Woodson County Fredonia.
- Kackley**; post village and station on Atchison, Topeka and Santa Fe Railway, in Beaver Township, Republic County; altitude, 1,505 feet Concordia.
- Kalloch**; station on Atchison, Topeka and Santa Fe Railway, in Parker Township, Montgomery County; altitude, 726 feet Independence.
- Kalvesta**; post village in Finney County.
- Kanona**; post village on Burlington and Missouri River Railway, in Decatur County; altitude, 2,727 feet.
- Kanopolis**; city in Ellsworth Township, Ellsworth County, on the north bank of Smoky Hill River and on Union Pacific Railway; population, 179; altitude, 2,729 feet Ellsworth.
- Kansada**; post village in Ness County.
- Kansas City**; county seat of Wyandotte County; the largest city of the State, situated at the junction of Kansas and Missouri rivers; its chief industry is meat slaughtering, for which it contains large stock yards and slaughterhouses. It is an important railroad center; altitude, 760 feet; population, 40,763 Kansas City.
- Kansas**; river, a large branch of the Missouri, heading in eastern Colorado and flowing through the State from west to east to its mouth at Kansas City. At Junction City it divides into two main streams, known as Smoky Hill and Republican rivers. Other large branches are Big Blue, Solomon, and Saline. It is a river of the plains, all its branches heading far east of the Rocky Mountains. Its drainage basin is mainly comprised in Kansas, a small portion only, that of a part of Republican River, being in Nebraska, while the heads of its two main branches are in eastern Colorado. The entire length of the river, following up the Smoky Hill Fork, is 650 miles.
- Kanwaka**; township in Douglas County; area, 50 square miles; population, 830 Lawrence.

Atlas sheets.

Kaploma; township in Atchison County; area, 60 square miles; population, 1,175.

{ Atchison.
Hiawatha.
Oskaloosa.
Topeka.

Kara; post village in Washington County.

Kaw; township in Jefferson County; area, 36 square miles; population, 761.

{ Topeka.
Oskaloosa.

Kaw; township in Wabaunsee County; area, 40 square miles; population, 647

Wamego.

Kearny; western county; organized, 1888; area, 864 square miles; population, 1,046; county seat, Hartland; mean magnetic declination, 11° 10'; rainfall, 18 inches; temperature, 55°.

The surface is a treeless plain. South of Arkansas River, which crosses the county from west to east, the country is sandy; the elevation ranges from 3,000 to 3,500 feet; little of the area is under cultivation; it is crossed by the main line of the Atchison, Topeka and Santa Fe Railway.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Hartland	138	94
Hibbard	156	55
Kearny	156	38
Kendall	138	106
Lakin	108	553
Lakin		295
Southside	164	200

Kearny; post village in Kearny County.

Atlas sheets.

Kearny; township in Kearny County; area, 156 square miles; population, 38.

Keats; post village on Chicago, Rock Island and Pacific Railway, in Riley County; altitude, 1,124 feet.

Kebar; post village in Graham County.

Kechi; post village on Chicago, Rock Island and Pacific Railway, in Sedgwick County; altitude, 1,373 feet.

Kechi; township in Sedgwick County; area, 36 square miles; population, 810

Wichita.

Keck; post village in Woodson County.

Keelville; post village in Cherokee County.

Keene; post-office in Mission Creek Township, Wabaunsee County

Eskridge.

Keighley; post-office and station on St. Louis and San Francisco Railway, in Glencoe Township, Butler County; altitude, 1,522 feet

Eldorado.

Keith; post village in Decatur County.

Kellogg; post village in Cowley County; altitude, 1,178 feet.

Kelly; post village on Kansas City, Wichita and Northwestern Railway, in Nemaha County; altitude, 1,196 feet.

Kelsey; creek, a left-hand branch of Osage River, in Franklin County

Lawrence.

Kelso; post-office and station on Missouri Pacific Railway, in Neosho Township, Morris County

Parkerville.

- Kemp**; creek, a left-hand branch of Chikaskia River, in King-
man County. Atlas sheets.
{ Anthony.
 Kingman.
- Kendall**; city in Kendall Township, Hamilton County; population, 25 (1895).
- Kendall**; township in Hamilton County; area, 90 square miles; population, 117.
- Kendall**; township in Kearny County; area, 138 square miles; population, 106.
- Kenilworth**; post village in Stafford County.
- Kennebee**; a hamlet in Russell Township, Russell County Russell.
- Kennedy**; post village in Dickinson County.
- Kennekuk**; post village in Atchison County.
- Kenneth**; township in Sheridan County; area, 36 square miles; population, 315.
- Kenoma**; creek, a left-hand branch of Pottawatomie Creek, in Franklin and Anderson counties..... Garnett.
- Kensington**; city on Chicago, Rock Island and Pacific Railway, in Cedar Township, Smith County; altitude, 1,769 feet; population, 219.
- Kent**; post village and station on Atchison, Topeka and Santa Fe Railway, in Valley Township, Reno County; altitude, 1,500 feet Hutchinson.
- Kentuck**; creek, a right-hand branch of Smoky Hill River, in McPherson and Saline counties..... Salina.
- Kentucky**; township in Jefferson County; area, 46 square miles; population, 1,599..... Oskaloosa.
- Kepple**; post village in Wichita County.
- Keystone**; township in Scott County; area, 72 square miles; population, 175.
- Keysville**; township in Pawnee County; area, 69 square miles; population, 170. { Larned.
 Ness.
- Key West**; township in Coffee County; area, 48 square miles; population, 821..... Burlington.
- Kibbie**; creek, a left-hand branch of Salt Creek, in Osage County Burlingame.
- Kickapoo**; post village and station on Missouri Pacific Railway and on Missouri River, in Kickapoo Township, Leavenworth County; altitude, 799 feet..... Kansas City.
- Kickapoo**; island in Missouri River, in Leavenworth County.. Kansas City.
- Kickapoo**; township in Leavenworth County; area, 44 square miles; population, 1,030. { Oskaloosa.
 Kansas City.
- Kidderville**; post village in Hodgeman County.
- Kiger**; creek, a left-hand branch of Big Sandy Creek, in Clark County Ashland.
- Kill**; creek, post-office in Kill Creek Township, Osborne County. Osborne.
- Kill**; creek, a right-hand branch of South Fork, Solomon River, in Osborne County..... Osborne.
- Kill**; creek, a small right-hand branch of Kansas River, in Johnson County Olathe.
- Kill Creek**; township in Osborne County; area, 36 square miles; population, 315..... Osborne.
- Kilmer**; post village in Shawnee County.
- Kimbal**; post village and railroad station in Neosho County; altitude, 1,060 feet.
- Kimeo**; post-office in Kimeo Township, Washington County... Marysville.

The surface is a rolling, treeless plain, somewhat eroded by streams, drained by Ninescah and Chikaskia rivers. The elevation ranges from 1,400 to 1,800 feet. It is an agricultural county, nearly half its area being under cultivation, mainly in corn. It is traversed by branches of the Missouri Pacific and Atchison, Topeka and Santa Fe and Wichita and Western railways. The county is underlain by salt beds, which are mined at Kingman.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Allen	36	288
Belmont	36	395
Bennett	36	581
Norwich		282
Canton	36	302
Chikaskia	36	295
Dale	36	347
Dresden	36	311
Eagle	36	331
Euireka	36	269
Evan	36	466
Galesburg	36	534
Hoosier	36	391
Kingman	36	236
Liberty	36	210
Ninnescah	66	2,091
Kingman		1,681
Peters	36	163
Richland	36	416
Rochester	36	343
Rural	36	307
Union	36	285
Valley	36	295
Vinita	36	368
White	42	613

Kingman ; township in Kingman County; area, 36 square miles; population, 236	Atlas sheets Kingman.
Kingsdown ; station on Chicago, Rock Island and Pacific Railway, in Sodville Township, Ford County; altitude 2,514 feet	Spearville.

Atlas sheets.

- Kingsville**; post-office and station on Union Pacific Railway, in Silver Lake Township, in Shawnee County; altitude, 916 feet..... Topeka.
- Kinney**; station on Union Pacific Railway, in Ridgeway Township, Osage County Burlingame.
- Kinsley**; city in Kinsley Township, county seat of Edwards County; population, 713; magnetic declination, $10^{\circ} 30'$; altitude, 2,171 feet. It is situated in the bottom land on the north bank of Arkansas River and on the Atchison, Topeka and Santa Fe Railway..... Kinsley.
- Kinsley**; township in Edwards County; area, 43 square miles; population, 1,022..... Kinsley.
- Kinsley**; creek, a right-hand branch of Mill Creek, in Wabann- {
see County. { Eskridge.
Wamego.
- Kiowa**; city in Kiowa Township, Barber County, on Atchison, Topeka and Santa Fe and Missouri Pacific railways; altitude, 1,333 feet; population, 385 Anthony.
- Kiowa**; southern county; organized, 1886; area, 720 square miles; population, 1,923; county seat, Greensburg; mean magnetic declination, $10^{\circ} 15'$; rainfall, 24 inches; temperature, 55° . {
Spearville.
Kinsley.
Ashland.
Coldwater.

The surface of the southern part is quite broken, while the northern part is covered with sand hills. The county is treeless. The elevation ranges from 1,800 to 2,400 feet. As the county is sparsely settled, but a small proportion of its area is cultivated, most of it being devoted to pasturage. It is traversed by branches of the Chicago, Rock Island and Pacific, Atchison, Topeka and Santa Fe, and Wichita and Western railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Brenham	42	180
Butler	36	107
Center	30	391
Greensburg		306
Garfield	36	54
Glick	110	184
Kiowa	81	70
Lincoln	36	65
Martin	99	273
Mullinville		63
Reeder	66	52
Union	36	25
Ursula	68	98
Valley	36	52
Wellsford	42	372
Haviland		79
Wellsford		81

Atlas sheets.

- Kiowa**; township in Barber County; area, 37 square miles; population, 508. {
Medicine Lodge.
Anthony.
- Kiowa**; township in Kiowa County; area, 81 square miles; population, 70. {
Kinsley.
Coldwater.
Spearville.
Ashland.

Atlas sheets.

- Kipp**; post village in Saline County.
- Kirkfield**; post village in Edwards County.
- Kirwin**; city in Kirwin Township, Phillips County, on Missouri Pacific Railway; altitude, 1,695 feet; population, 448. Phillipsburg.
- Kirwin**; township in Phillips County; area, 36 square miles; population, 822. Phillipsburg.
- Kislwa**; creek, a right-hand branch of Little Arkansas River, in Reno and Harvey counties. Cheney. Hutchinson.
- Klink**; post village in Sherman County.
- Knauston**; post village in Finney County.
- Knight**; station on Missouri Pacific Railway, in Fairview Township, Russell County. Osborne.
- Kniveton**; post village in Cherokee County.
- Kong**; post village in Coffey County.
- Kossuth**; post village in Linn County.
- Kuhnbrook**; post village in Marion County.
- Kuka**; post village in Thomas County.
- Kuntz**; branch of Walnut Creek, in Greenwood County. Eureka.
- Labette**; southeastern county; organized, 1867; area, 649 square miles; population, 27,568; county seat, Oswego; mean magnetic declination, 8° 20'; rainfall, 35 inches; temperature, 55°. Independence. Parsons.

The surface is an undulating plain, treeless except in the stream valleys, and is drained by Neosho River and its branches. The elevation ranges from 800 to 1,000 feet. It is an agricultural county, about one-half its area being under cultivation, mainly in corn and wheat. About one-half its population is in its cities, most of them being in Parsons, an important railroad center. It is traversed by branches of the Missouri, Kansas and Texas, St. Louis and San Francisco, and Kansas City, Fort Scott and Memphis railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Canada	40	627
Elm Grove	52	1,320
Edna		410
Fairview	36	741
Hackberry	52	858
Howard	46	786
Labette	36	690
Liberty	36	867
Montana	30	772
Mound Valley	64	1,621
Mound Valley		509
Mount Pleasant	36	1,210
Altamont		546
Neosho	30	570
North	36	8,939
Parsons		8,115
Osage	64	1,456
Oswego	30	3,053
Oswego		2,492
Richland	43	3,433
Chetopa		2,424
Walton	36	626

Atlas sheets.

- Labette**; post village and station on Missouri, Kansas and Texas Railway, in Liberty Township, Labette County; altitude, 858 feet Parsons.
- Labette**; township in Labette County; area, 36 square miles; population, 690 Parsons.
- Labette**; creek, a right-hand branch of Neosho River, in Labette and Neosho counties Parsons.
- Lablanche**; post village in Sherman County.
- Lacey**; township in Thomas County; area, 36 square miles; population, 145.
- Laclede**; post village in Pottawatomie County.
- Lacrosse**; city in Lacrosse Township; county seat of Rush County, on Missouri Pacific Railway; magnetic declination, 10° 05'; altitude, 2,061 feet; population, 390 Hays.
- Lacrosse**; township in Rush County; area, 42 square miles; population, 612 Hays.
- Lacygne**; city in Lincoln Township, Linn County, on Kansas City, Fort Scott and Memphis Railway; altitude, 827 feet; population, 1,094 Mound City.
- Ladder**; creek, a right-hand branch of Smoky Hill River, in Wallace, Greeley, Wichita, Scott, and Logan counties.
- Ladore**; village on Missouri, Kansas and Texas Railway, in Ladore Township, Neosho County; altitude, 905 feet Parsons.
- Ladore**; township in Neosho County; area, 48 square miles; population, 984 Parsons.
- Lafayette**; post village in Stevens County.
- Lafayette**; township in Chautauqua County; area, 62 square miles; population, 490 Sedan.
- Lafayette**; township in Stevens County; area, 81 square miles; population, 76.
- Lafontaine**; post village on Missouri Pacific Railway, in Talleyrand Township, Wilson County Independence.
- Lagrange**; post-office in Clear Fork Township, Marshall County. Seneca.
- Laharpe**; post village and station on Atchison, Topeka and Santa Fe Railway, in Allen County; altitude, 1,045 feet ... Iola.
- Laing**; township in Rawlins County; area, 48 square miles; population 240.
- Lake**; township in Harper County; area, 54 square miles; population, 394 Anthony.
- Lake**; township in Harvey County; area, 36 square miles; population, 485 Cheney.
- Lake**; township in Scott County; area, 120 square miles; population, 91.
- Lake**; post village in Lake City Township, Barber County Medicine Lodge.
- Lake City**; township in Barber County; area, 42 square miles; population, 137 Medicine Lodge.
- Lake Inman**; lake in Superior Township, in McPherson County. Hutchinson.
- Lakeland**; post village in Sand Creek Township, in Meade County Meade.
- Lakeside**; post village in Bourbon County.
- Lake View**; station on Atchison, Topeka and Santa Fe Railway, in Wakarusa Township, Douglas County; altitude, 830 feet Osakaloosa.
- Lakin**; city on Atchison, Topeka and Santa Fe Railway, in Lakin Township, Kearney County; altitude, 2,998 feet; population, 295.

Atlas sheets.

- Langley**; township in Ellsworth County; area, 36 square miles; population, 362.
- Lanham**; city in Independence Township, Washington County, on Burlington and Missouri River Railway; population, 43; no post-office Marysville.
- Lansing**; city in Delaware Township, Leavenworth County, on Atchison, Topeka and Santa Fe Railway; population, 589; altitude, 814 feet Kansas City.
- Lapeer**; post village in Douglas County.
- Larabee**; township in Gove County; area, 144 square miles; population, 156.
- Lards**; creek, a left-hand branch of Neosho River in Morris County Parkerville.
- Larimer**; post village in Montgomery County.
- Larimore**; station on Missouri Pacific Railway, in Peoria Township, Franklin County Lawrence.
- Larkin**; post village and station on Union Pacific Railway, in Franklin Township, Jackson County; altitude, 940 feet Topeka.
- Larned**; city in Larned Township, county seat of Pawnee County, on Atchison, Topeka and Santa Fe and Missouri Pacific railways; magnetic declination, $10^{\circ} 30'$; altitude, 2,002 feet; population, 1,374 Larned.
- Larned**; township in Pawnee County; area, 61 square miles; population, 1,789 Larned.
- Lashmet**; post village in Kingman County.
- Lashita**; post village in Riley County.
- Latham**; city and railroad station in Union Township; Butler County; population, 268 (1890) Eldorado.
- Latimer**; post village on Chicago, Rock Island and Pacific Railway, in Morris County; altitude, 1,411 feet.
- Laton**; a hamlet in Corning Township, Rooks County Plainville.
- Laurel**; post village in Hodgeman County.
- Lava**; post village in Sherman County.
- Lawn**; township in Harper County; area, 36 square miles; population, 380 Anthony.
- Lawndale**; post village in Pratt County.
- Lawn Ridge**; township in Cheyenne County; area, 72 square miles; population, 171.
- Lawrence**; city and county seat of Douglas County; population, 10,684; altitude, 828 feet; magnetic declination, $8^{\circ} 35'$. It is situated on the south or right bank of Kansas River, and is upon the Union Pacific and Atchison, Topeka and Santa Fe railways Lawrence.
- Lawrence**; township in Cloud County; area, 36 square miles; population, 753. { Concordia.
Washington.
- Lawrence**; township in Osborne County; area, 36 square miles; population, 347. { Osborne.
Smith Center.
- Lawrenceburg**; post village and station on Union Pacific Railroad, in Lawrence Township, Cloud County; altitude, 1,325 feet Concordia.
- Lawrence Junction**; station on Atchison, Topeka and Santa Fe Railway, in Ottawa Township, Franklin County Lawrence.
- Lawson**; post village in Grant County.
- Leanna**; post village in Allen County Iola.

Atlas sheets.

Leavenworth; city and county seat of Leavenworth County; altitude, 765 feet; population, 21,120. It is situated on the right bank of Missouri River, and is a railroad center of importance, being entered by Union Pacific, Atchison, Topeka and Santa Fe, and Missouri Pacific railways.....

Kansas City.

Leavenworth; northeastern county; organized, 1855; area, 455 square miles; population, 33,698; county seat, Leavenworth; mean magnetic declination, 8° 55'; rainfall, 33 inches; temperature, 53°.

Oskaloosa.
Kansas City.

The surface is a plain, deeply eroded by streams. The elevation ranges from 800 to 1,100 feet. The county is limited on the northeast by Missouri River, on south by Kansas River, and is drained by these streams and their tributaries. It is treeless, except in stream valleys. Aside from the county seat, which contains two-thirds the population, this is an agricultural county, nearly two-thirds of its area being cultivated. It is traversed by several railways, including branches of Union Pacific, Kansas City, Wyandotte and Northwestern, and Atchison, Topeka and Santa Fe railways. Coal is mined at Leavenworth and Tonganoxie.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Alexander.....	48	1,139
Delaware.....	31	1,064
Lansing.....		589
Easton.....	42	1,304
Easton.....		132
Fairmount.....	40	1,051
High Prairie.....	48	1,117
Kickapoo.....	44	1,030
Reno.....	43	1,161
Reno.....		101
Stranger.....	50	942
Sherman.....	42	1,381
Linwood.....		123
Tonganoxie.....	54	2,389
Tonganoxie.....		967
Leavenworth.....		21,120

Atlas sheets.

Leban; creek, a right-hand branch of Solomon River, in Mitchell County.....

Beloit.

Lebanon; city in Oak Township, Smith County, on Chicago, Rock Island and Pacific Railway; altitude, 1,812 feet; population, 338.....

Smith Center.

Lebo; city in Lincoln Township, Coffey County, on Atchison, Topeka and Santa Fe Railway; population, 561; altitude, 1,155 feet.....

Burlington.

Lebo; creek, a small left-hand branch of Neosho River, in Coffey County.....

Burlington.

Lecompton; city in Lecompton Township, Douglas County, on the Atchison, Topeka and Santa Fe Railway; altitude, 846 feet; population, 426.....

Oskaloosa.

Lecompton; township in Douglas County; area, 33 square miles; population, 1,236.....

Oskaloosa.

Lee; post village in Doniphan County.

Atlas sheets.

Lee ; station on Union Pacific Railway, in Jefferson Township, Jefferson County; altitude, 1,040 feet.....	Oskaloosa.
Leeds ; post village in Chautauqua County.	
Lees ; township in Logan County; area, 72 square miles; population, 52.	
Leesburg ; post village in Union Township, Stafford County...	Pratt.
Lehigh ; post village and station on Atchison, Topeka and Santa Fe Railway, in Lehigh Township, Marion County; altitude, 1,529 feet.....	Newton.
Lehigh ; township in Marion County; area, 36 square miles; population, 913.....	Newton.
Leland , post village in Graham County.	
Leloup ; post village in Franklin County; altitude, 951 feet.	
Lenape ; post village on Union Pacific Railway, in Sherman Township, Leavenworth County; altitude, 787 feet.....	Olathe.
Leua Valley ; a hamlet in Shell Rock Township, Greenwood County.....	Emporia.
Lenexa ; post village and station on Atchison, Topeka and Santa Fe Railway, in Shawnee Township, Johnson County; altitude, 1,052 feet.....	Olathe.
Lenora ; city in Lenora Township, Norton County, on Missouri Pacific Railway; altitude, 2,271 feet; population, 192.....	Norton.
Lenora ; township in Norton County; area, 36 square miles; population, 360.....	Norton.
Leon ; city in Little Walnut Township, Butler County, on St. Louis and San Francisco Railway; altitude, 1,329 feet; population, 449.....	Eldorado.
Leona ; city in Wolf River Township, Doniphan County, on St. Joseph and Western Railway, in Doniphan County; population, 259.....	Atchison.
Leonardville ; city in Bala Township, Riley County, on Missouri Pacific Railway; population, 314; altitude, 1,377 feet.....	Junction City.
Leota ; township in Norton County; area, 78 square miles; population, 686.....	Norton.
Leoti ; city on Missouri Pacific Railway, in Leoti Township, county seat of Wichita County; population, 341 (1890); altitude, 3,300 feet.	
Leoti ; township in Wichita County; population, 296.	
Lerado ; post village in Bell Township, Reno County.....	Kingman.
Leroy ; city in Leroy Township, Coffey County, on Missouri Pacific Railway; population, 852; altitude, 990 feet.....	Burlington.
Leroy ; township in Coffey County; area, 21 square miles; population 1,227.....	Burlington.
Letitia ; post village in Clark County.....	Ashland.
Levant ; post village on Chicago, Rock Island and Pacific Railway, in Thomas County; altitude, 3,307 feet.	
Level ; creek, a small right-hand branch of Neosho River, in Morris County.....	Parkerville.
Level ; creek, fork of Neosho River in Morris County.....	Parkerville.
Lewis ; post village and station on Atchison, Topeka and Santa Fe Railway, in Wayne Township, Edwards County; altitude, 2,149 feet.....	Kinaley.
Lewis ; township in Gove County; area, 144 square miles; population, 134.	
Lexington ; post village in Clark County.....	Ashland.

Lexington ; township in Clark County; area, 80 square miles; population, 186	Ashland.
Lexington ; township in Johnson County; area, 65 square miles; population, 1,875.	{ Olathe. Lawrence.
Liberal ; post village and county seat of Seward County, on Chicago, Rock Island and Pacific Railway; altitude, 2,843 feet.	
Liberal ; township in Seward County; area, 99 square miles; population, 377.	
Liberty ; city in Liberty Township, Montgomery County, on Atchison, Topeka and Santa Fe Railway; altitude, 746 feet; population, 298	Independence.
Liberty ; township in Barton County; area, 36 square miles; population, 425	Great Bend.
Liberty ; township in Clark County; area, 60 square miles; population, 64	Ashland.
Liberty ; township in Coffey County; area, 72 square miles; population, 1,171	Burlington.
Liberty ; township in Cowley County; area, 48 square miles; population, 563	Burden.
Liberty ; township in Decatur County; area, 36 square miles; population, 258.	
Liberty ; township in Dickinson County; area, 44 square miles; population, 574.	{ Abilene. Parkerville.
Liberty ; township in Elk County; area, 60 square miles; population, 668.	{ Eureka. Fredonia.
Liberty ; township in Geary County; area, 66 square miles; population, 778	Parkerville.
Liberty ; township in Hamilton County; area, 99 square miles; population, 56.	
Liberty ; township in Jackson County; area, 36 square miles; population, 746.	{ Topeka. Hiawatha.
Liberty ; township in Kingman County; area, 36 square miles; population, 210	Anthony.
Liberty ; township in Labette County; area, 36 square miles; population, 867	Parsons.
Liberty ; township in Linn County; area, 64 square miles; population, 1,531.	{ Mound City. Garnett.
Liberty ; township in Marion County; area, 36 square miles; population, 1,037	Newton.
Liberty ; township in Montgomery County; area, 40 square miles; population, 1,096	Independence.
Liberty ; township in Osborne County; area, 36 square miles; population, 214	Osborne.
Liberty ; township in Republic County; area, 36 square miles; population, 698	Concordia.
Liberty ; township in Saline County; area, 36 square miles; population, 405.	{ Abilene. Salina.
Liberty ; township in Woodson County; area, 58 square miles; population, 860.	{ Fredonia. Burlington.
Liebethal ; post village in Timber Township, Rush County.	Hays.
Lightning ; creek, a left-hand branch of Neosho River, in Labette, Cherokee, and Crawford counties.	{ Parsons. Joplin.
Lily ; creek, a right-hand branch of Spring Creek, in Marshall County	Marysville.

Atlas sheets.

- Lime**; creek, a left-hand branch of Lightning Creek, in Crawford County Joplin.
- Lime**; creek, a right-hand branch of Lyons Creek, in Dickinson County Parkerville.
- Limestone**; township in Jewell County; area, 36 square miles; population, 724 Mankato.
- Limestone**; creek, a left-hand branch of Hermes Creek, in Jewell County Mankato.
- Lincoln**; city in Elkhorn Township, county seat of Lincoln County, on Union Pacific Railway; altitude, 1,374 feet; population, 729 Beloit.
- Lincoln**; central county; organized, 1870; area, 720 square miles; population, 8,988; county seat, Lincoln; mean magnetic declination, 10° 15'; rainfall, 26 inches; temperature, 53°. { Beloit.
Osborne.

The surface is treeless and broken, being heavily eroded by streams. The elevation ranges from 1,300 to 1,700 feet. It is an agricultural country, more than half its area being cultivated, mainly in corn and wheat. It is traversed by a branch of Union Pacific Railway.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Battle Creek	36	330
Beaver	36	403
Cedron	36	492
Colorado	36	535
Elkhorn	36	1,314
Lincoln		729
Franklin	36	455
Golden Belt	36	303
Grant	36	474
Hanover	36	336
Highland	36	293
Indiana	36	588
Logan	36	363
Madison	36	262
Marion	36	370
Orange	36	462
Pleasant	36	606
Salt Creek	36	430
Scott	36	412
Valley	36	203
Vesper	36	357

Atlas sheets.

- Lincoln**; township in Anderson County; area, 48 square miles; population, 736 Garnett.
- Lincoln**; township in Butler County; area, 100 square miles; population, 312. { Eldorado.
Cottonwood Falls.
- Lincoln**; township in Cloud County; area, 26 square miles; population, 3,029 Concordia.
- Lincoln**; township in Coffee County; area, 42 square miles; population, 1,224 Burlington.
- Lincoln**; township in Crawford County; area, 72 square miles; population, 2,764 Fort Scott.

Atlas sheets.

- Lincoln**; township in Decatur County; area, 36 square miles; population, 499.
- Lincoln**; township in Dickinson County; area, 36 square miles; population, 1,215..... Abilene.
- Lincoln**; township in Edwards County; area, 72 square miles; population, 353 Kinsley.
- Lincoln**; township in Ellsworth County; area, 36 square miles; population, 294 Ellsworth.
- Lincoln**; township in Franklin County; area, 32 square miles; population, 615 Lawrence.
- Lincoln**; township in Grant County; area, 144 square miles; population, 130.
- Lincoln**; township in Kiowa County; area, 36 square miles; population, 65.
- Lincoln**; township in Linn County; area, 53 square miles; population, 2,281..... Mound City.
- Lincoln**; township in Neosho County; area, 48 square miles; population, 914 Parsons.
- Lincoln**; township in Norton County; area, 36 square miles; population, 163 Norton.
- Lincoln**; township in Osage County; area, 30 square miles; } Burlingame.
population, 718. } Burlington.
- Lincoln**; township in Ottawa County; area, 36 square miles; } Clay Center.
population, 388. } Abilene.
- Lincoln**; township in Pottawatomie County; area, 30 square miles; population, 403..... Wamego.
- Lincoln**; township in Reno County; area, 56 square miles; } Cheney.
population, 883. } Kingman.
- Lincoln**; township in Republic County; area, 36 square miles; population, 614 Concordia.
- Lincoln**; township in Rice County; area, 36 square miles; population, 637..... Lyons.
- Lincoln**; township in Russell County; area, 90 square miles; population, 823.
- Lincoln**; township in Sedgwick County; area, 36 square miles; population, 553 Wichita.
- Lincoln**; township in Sherman County; area, 72 square miles; population, 246.
- Lincoln**; township in Smith County; area, 36 square miles; population, 390 Smith Center.
- Lincoln**; township in Stafford County; area, 36 square miles; population, 289 Great Bend.
- Lincoln**; township in Stevens County; area, 54 square miles; population, 70.
- Lincoln**; township in Washington County; area, 36 square miles; population, 580 Marysville.
- Lincolnville**; post village and station on Chicago, Rock Island and Pacific Railway, in Clear Creek Township, Marion County; altitude, 1,432 feet Cottonwood Falls.
- Linda**; post village in Rawlins County.
- Lindsborg**; city in Smoky Hill Township, McPherson County, on Missouri Pacific and Union Pacific railways; altitude, 1,335 feet; population, 1,333..... Salina.
- Linn**; city in Linn Township, Washington County, on Missouri Pacific Railway; altitude, 1,463 feet; population, 185..... Washington.

Atlas sheets.

Linn; eastern county; organized, 1855; area, 637 square miles; population, 18,047; county seat, Mound; mean magnetic declination, 8° 55'; rainfall, 38 inches; temperature, 54°. Garnett.
Mound City.

The surface is a broken plain, treeless except in the stream valleys and drained by Osage River. The elevation ranges from 750 to 1,000 feet. It is an agricultural county, about one-half its area being cultivated, mainly in corn. It is traversed by branches of Kansas City, Fort Scott and Memphis Railway. Coal is mined at Lacygne and other points.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Blue Mound.....	64	1,684
Blue Mound.....		748
Centerville.....	79	1,664
Liberty.....	64	1,531
Lincoln.....	53	2,281
Lacygne.....		1,094
Mound City.....	50	1,826
Mound.....		887
Paris.....	65	1,373
Potosi.....	56	2,624
Pleasanton.....		1,060
Scott.....	64	1,300
Sheridan.....	45	1,471
Stanton.....	30	630
Valley.....	47	1,663

Atlas sheets.

Linn; township in Washington County; area, 36 square miles; population, 915 Washington.

Linndale; post village in Rush County.

Linwood; city on Union Pacific Railway, in Sherman Township, Leavenworth County; altitude, 799 feet; population, 123.

Lister; post village in Wallace County.

Litchfield; city in Baker Township, Crawford County, on Kansas City, Fort Scott and Memphis Railway; population, 664. Joplin.

Little; creek, a small tributary to Kansas River, in Johnson County; length, 6 miles. Kansas City.
Olathe.

Little; creek, a right-hand branch of Salt Creek, in Mitchell County Beloit.

Little Arkansas; river, a left-hand branch of Arkansas River, in McPherson, Reno, Harvey, Sedgwick, and Rice Counties. Hutchison.
Newton.
Wichita.
Cheney.

Little Bear; creek, a right-hand branch of Medicine Lodge River, in Barber County Medicine Lodge.

Little Beaver; creek, a left-hand tributary to Arkansas River, in Cowley County Wellington.

Little Beaver; creek, a right-hand branch of Beaver Creek, in Cowley County Burden.

Little Blue; township in Washington County; area, 36 square miles; population, 704 Marysville.

Atlas sheets.

Little Blue ; river, a right-hand branch of Big Blue River, in Marshall and Washington counties	Marysville.
Little Bull ; creek, a left-hand branch of Big Bull Creek, in Miami County	Olathe.
Little Caney ; township in Chautauqua County; area, 47 square miles; population, 917.	Sedan. Independence.
Little Cedar ; creek, a right-hand branch of South Fork Cottonwood River, in Chase County	Cottonwood Falls.
Little Cedar ; creek, a left-hand branch of Dutch Creek, in Cowley County	Burden.
Little Coon ; creek, a branch of Coon Creek, in Edwards County.	Spearville. Kinsley.
Little Cow ; creek, a left-hand branch of Cow Creek, in Crawford County	Joplin.
Little Cow ; creek, a left-hand branch of Cow Creek, in Rice County	Lyons.
Little Cross ; creek, a left-hand branch of Cross Creek, in Jackson County	Wamego.
Little Delaware ; creek, a branch of Grass Apple Creek, in Atchison County, entering it at Muscotah; length, 10 miles.	Atchison.
Little Driftwood ; creek, branch of Driftwood Creek, in Barber County	Medicine Lodge.
Little John ; creek, a left-hand branch of Neosho River, in Morris County	Esksridge.
Little Kaw ; creek, a left-hand branch of Kansas River, in Leavenworth and Wyandotte counties; length, 7 miles.	Kansas City.
Little Labette ; creek, a right-hand branch of Labette Creek, in Labette and Neosho counties	Parsons.
Little Muddy ; creek, a small left-hand branch of Kansas River, in Jefferson and Shawnee counties	Topeka.
Little Mule ; creek, a branch of Medicine Lodge River, in Barber County	Medicine Lodge.
Little Osage ; river, branch of Osage River, in Missouri and eastern Kansas.	Mound City. Fort Scott. Garnett.
Little River ; city in Union Township, Rice County, on Atchison, Topeka and Santa Fe Railway; altitude, 1,581 feet; population, 402.	Lyons.
Little River ; township in Reno County; area, 66 square miles; population, 834	Hutchinson.
Little Salt ; marsh, in Putnam Township, Stafford County.	Great Bend.
Little Sandy ; creek, a right-hand branch of Bear Creek, in Clark County	Ashland.
Little Sandy ; creek, a branch of Medicine Lodge River, in Harper and Barber counties	Anthony.
Little Sandy ; creek, a left-hand branch of Sandy Creek, in Wilson and Woodson counties	Fredonia.
Little Slough ; creek, a small left-hand branch of Grasshopper Creek, in Jefferson County	Oskaloosa.
Little Soldier ; creek, a left-hand branch of Big Soldier Creek, in Shawnee and Jackson counties; length, 25 miles.	Topeka.
Little Stranger ; creek, a small left-hand branch of Big Stranger Creek, in Leavenworth County.	Kansas City. Oskaloosa.
Little Sugar ; creek, a right-hand branch of Big Sugar Creek, in Linn County	Mound City.
Little Timber ; creek, a left-hand branch of Spillman Creek, in Lincoln County	Beloit.

Atlas sheets.

- Little Timber**; creek, a right-hand branch of Black Vermilion River, in Marshall County Seneca.
- Little Turkey**; creek, a small left-hand branch of Kansas River, in Wyandotte County; length, 6 miles Kansas City.
- Little Valley**; township in McPherson County; area, 36 square miles; population, 618 Hutchinson.
- Little Walnut**; township in Butler County; area, 36 square miles; population, 789 Eldorado.
- Little Walnut**; creek, a left-hand branch of Walnut River, in Butler County. { Eldorado.
Wichita.
- Little Walnut**; creek, a right-hand tributary to Big Walnut Creek, in Crawford County Iola.
- Little Walnut**; creek, a right-hand branch of Solomon River, in Mitchell County Beloit.
- Little Walnut**; creek, a right-hand branch of Walnut Creek, in Rush and Barton counties. { Larned.
Great Bend.
- Liverpool**; post village in Stanton County.
- Liverpool**; township in Stanton County; area, 72 square miles; population, 109.
- Llanos**; township in Sherman County; area, 72 square miles; population, 224.
- Looklane**; creek, a left fork of Mud Creek, in Brown and Nemaha counties Hiawatha.
- Lockport**; post village in Lockport Township, Haskell County. Garden.
- Lockport**; township in Haskell County; area, 64 square miles; population, 91 Garden.
- Loco**; township in Haskell County; area, 64 square miles; population, 37.
- Locust**; creek, a small right-hand branch of Elm Creek, in Wabunsee County Eskridge.
- Loda**; township in Reno County; area, 36 square miles; population, 442 Kingman.
- Logan**; western county; organized, 1888; area, 1,080 square miles; population, 2,049; county seat, Russell Springs; mean magnetic declination, 11° 25'; rainfall, 18 inches; temperature, 53°.
- The surface is a treeless plain, drained by Smoky Hill River, which flows across it from northwest to southeast. The elevation ranges from 2,800 to 3,300 feet. Little of its area is under cultivation. It is crossed by a branch of the Union Pacific Railway.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Augustine.....	72	108
Elkader.....	108	97
Lees.....	72	52
Logansport.....	108	117
McAllaster.....	108	147
Monument.....	108	286
Oakley.....	108	499
Oakley.....		203
Paxton.....	72	141
Russell Springs.....	108	195
Russell Springs.....		84
Western.....	108	149
Winona.....	108	258

Logan; city in Logan Township, Phillips County, on Missouri Pacific Railway; altitude, 1,950 feet; population, 362..... Norton.

Logan; township in Allen County; population, 435.

Logan; township in Barton County; area, 36 square miles; } Great Bend.
population, 458. } Russell.

Logan; township in Butler County; area, 36 square miles; pop- Eldorado.
ulation, 308

Logan; township in Comanche County; area, 54 square miles; Coldwater.
population, 128

Logan; township in Decatur County; area, 72 square miles; population, 462.

Logan; township in Dickinson County; area, 36 square miles; Abilene.
population, 399

Logan; township in Edwards County; area, 36 square miles; population, 149.

Logan; township in Gray County; area, 120 square miles; } Dodge.
population, 142. } Garden.

Logan; township in Lincoln County; area, 36 square miles; } Beloit.
population, 363. } Minneapolis.

Logan; township in Marion County; area, 36 square miles; pop-
ulation, 570.

Logan; township in Marshall County; population, 837.

Logan; township in Meade County; area, 110 square miles; Meade.
population, 124

Logan; township in Mitchell County; area, 36 square miles; } Beloit.
population, 634. } Minneapolis.

Logan; township in Ottawa County; area, 36 square miles; Minneapolis.
population, 501

Logan; township in Pawnee County; area, 36 square miles; } Larned.
population, 177. } Great Bend.

Logan; township in Phillips County; area, 30 square miles; Norton.
population, 618

Logan; township in Pratt County; area, 36 square miles; popu- Pratt.
lation, 191

Logan; township in Rawlins County; area, 36 square miles; population, 178.

Logan; township in Rooks County; area, 36 square miles; popu- Plainville
lation, 407

Logan; township in Sheridan County; area, 72 square miles; population, 241.

Logan; township in Sherman County; area, 54 square miles; population, 266.

Logan; township in Smith County; area, 36 square miles; popu- Smith Center.
lation, 563

Logan; township in Washington County; area, 36 square miles; } Marysville.
population, 432. } Washington.

Logansport; township in Logan County; area, 108 square miles; population, 117.

Lola; township in Cherokee County; area, 42 square miles; } Joplin.
population, 1,225. } Parsons.

Lomando; post village in Woodson County.

London; township in Sumner County; area, 42 square miles; Wellington.
population, 638

Lone Elm; post village in Anderson County Garnett.

	Atlas sheets.
Lone Elm ; township in Anderson County; area, 42 square miles; population, 956.....	Garnett.
Lone Elm ; creek, a left-hand branch of Walnut River, in Cowley County	Wellington.
Lone Star ; township in Rush County; area, 42 square miles; population, 547.....	{ Hays. Larned.
Lone Tree ; township in McPherson County; area, 36 square miles; population, 922.....	{ Hutchinson. Newton.
Lone Tree ; township in Pottawatomie County; area, 33 square miles; population, 501.....	{ Seneca. Wamego.
Lone Walnut ; post village in Lincoln County.	
Long ; branch, a left-hand branch of Cow Creek, in Rice County	Lyons.
Long ; creek, a left-hand branch of Neosho River, in Coffey County	Burlington.
Long ; creek, a right-hand tributary to Marais des Cygnes Creek, in Osage and Coffey counties.	{ Burlington. Burlingame.
Long ; creek, a tributary of Prairie Creek, in Sumner County..	Caldwell.
Longford ; post village and station on Atchison, Topeka and Santa Fe Railway, in Chapman Township, Clay County; altitude, 1,234 feet	Clay Center.
Long Island ; post village and station on Burlington and Missouri River Railway, in Long Island Township, Phillips County; altitude, 2,071 feet	Norton.
Long Island ; township in Phillips County; area, 48 square miles; population, 895.....	Norton.
Longton ; city in Longton Township, Elk County, on Atchison, Topeka and Santa Fe Railway; altitude, 916 feet; population, 522	Sedan.
Longton ; township in Elk County; area, 45 square miles; population, 1,002.....	Sedan.
Lookout ; township in Ellis County; area, 54 square miles; population, 352.....	Hays.
Lookout ; hollow, in Lookout Township, Ellis County	Hays.
Lorena ; post village on St. Louis and San Francisco Railway, in Butler County; altitude, 1,336 feet.	
Loring ; post village on Union Pacific Railway, in Wyandotte County; altitude, 794 feet.	
Lorraine ; post-office and station on Atchison, Topeka and Santa Fe and St. Louis and San Francisco railways, in Green Garden Township, Ellsworth County; altitude, 1,781 feet	Ellsworth.
Loss ; creek, a small, left-hand tributary to Neosho River, in Coffey County	Burlington.
Lost ; creek, a left-hand branch of Little Osage River, in Bourbon and Linn counties	Mound City.
Lost ; creek, a left-hand branch of Saline River, in Lincoln County	Beloit.
Lost ; creek, a left-hand branch of Cow Creek, in Rice County.	Lyons.
Lost ; creek, a right-hand branch of South Fork Solomon River, in Rooks County	Plainville.
Lost Springs ; post village on Chicago, Rock Island and Pacific Railway, in Marion County; altitude, 1,476 feet.	
Lost Springs ; township in Marion County; area, 36 square miles; population, 603.....	{ Abilene. Parkerville.

Atlas sheets.

- Louisburg**; city in Wea Township, Miami County, on Missouri Pacific Railway; population, 638 Olathe.
- Louisburg**; township in Montgomery County; area, 72 square miles; population, 1,920 Independence.
- Louisville**; city in Louisville Township, Pottawatomie County; population, 312 Wamego.
- Louisville**; township in Pottawatomie County; area, 37 square miles; population, 907 Wamego.
- Lovewell**; city in Sinclair Township, Jewell County; population, 31.
- Lowe**; post village in Chautanqua County.
- Lowe**; township in Washington County; area, 36 square miles; population, 534 Washington.
- Lowell**; post village on Kansas City, Fort Scott and Memphis Railway, in Cherokee County; altitude, 825 feet.
- Lowell**; township in Cherokee County; area, 17 square miles; population, 9,533 Joplin.
- Lowell**; township in Rooks County; area, 36 square miles; population, 414 Plainville.
- Lowemont**; post village in Leavenworth County; altitude, 1,094 feet.
- Loyal**; post village in Finney County.
- Lucas**; city in Fairview Township, Russell County, on Union Pacific Railway; altitude, 1,493 feet; population, 128 Osborne.
- Lucerne**; post village in Sheridan County.
- Luctor**; post village in Phillips County.
- Ludell**; post village in Rawlins County.
- Ludell**; township in Rawlins County; area, 84 square miles; population, 284.
- Lulu**; township in Mitchell County; area, 36 square miles; population, 563. { Beloit.
Minneapolis.
Mankato.
Concordia.
- Lund**; post village in Decatur County.
- Luray**; city in Fairview Township, in Russell County, on Union Pacific Railway; altitude, 1,576 feet; population, 86 Osborne.
- Luther**; post village in Washington County.
- Lydia**; post village in Wichita County.
- Lyle**; post village in Decatur County.
- Lyndon**; city in Valley Brook Township, county seat of Osage County, on Atchison, Topeka and Santa Fe Railway; magnetic declination, 9° 10'; altitude, 1,006 feet; population, 929 Burlingame.
- Lynn**; creek, a left-hand branch of Wakarusa Creek, in Shawnee County Burlingame.
- Lyon**; eastern county; organized 1858; area, 858 square miles; population, 24,251; county seat, Emporia; mean magnetic declination, 10° 00'; rainfall, 32 inches; temperature, 54°. { Emporia.
Eskridge.
- The surface is an undulating plain, treeless except in the stream valleys, and drained by Neosho and Cottonwood rivers. The elevation ranges from 1,000 to 1,400 feet. It is an agricultural county, more than half its area being cultivated, mainly in corn. It is traversed by branches of the Atchison, Topeka and Santa Fe and Missouri Pacific railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Agnes City	108	1,589
Americus	88	1,931
Americus		448
Center	120	1,298
Elmendaro	100	2,220
Hartford		(1895) 558
Emporia	66	10,654
Emporia		8,676
Fremont	72	1,079
Ivy	31	680
Jackson	88	1,797
Pike	54	1,014
Reading	69	1,050
Reading		288
Waterloo	59	939

Atlas sheets.

- Lyon**; township in Cherokee County; area, 51 square miles; population, 1,073..... **Abilene.**
Lyon; township in Cloud County; area, 54 square miles; population, 722..... **Minneapolis.**
Lyon; township in Decatur County; area, 36 square miles; population, 184.....
Lyon; township in Dickinson County; area, 36 square miles; population, 2,002..... **Abilene.**
Lyon; township in Geary County; area, 44 square miles; population, 486..... **Parkerville.**
Lyons; city in Atlanta Township, county seat of Rice County, on Atchison, Topeka and Santa Fe and St. Louis and San Francisco railways; magnetic declination, 9° 45'; altitude, 1,701 feet; population, 1,585..... **Lyons.**
Lyons; creek, a right-hand branch of Smoky Hill River, in Davis and Dickinson counties..... **Parkerville.**
McAdvo; township in Barber County; area, 36 square miles; population, 134..... **Abilene.**
McAllaster; post village in Logan County, on Union Pacific Railroad; altitude, 3,156 feet..... **Medicine Lodge.**
McAllaster; township in Logan County; area, 108 square miles; population, 147.....
McAllister; creek, a right-hand branch of Gypsum Creek, in Saline County..... **Abilene.**
McCamish; township in Johnson County; area, 45 square miles; population, 1,222..... **Olathe.**
McClellan; township in Pratt County; area, 66 square miles; population, 154..... **Lawrence.**
McCracken; city in Hampton Township, Rush County, on Missouri Pacific Railway; altitude, 2,139 feet; population, 203..... **Pratt.**
McCune; city in Osage Township, Crawford County, on Kansas City, Fort Scott and Memphis Railway; altitude, 822 feet; population, 680..... **Kinsley.**
McDonald; post village on Burlington and Missouri River Railway, in Rawlins County; altitude, 3,366 feet..... **Ellis.**
McDowells; creek, a right-hand branch of Kansas River, in Davis and Riley counties..... **Junction City.**
McFadden; branch, a small, left-hand tributary to Osage River, in Miami County..... **Parkerville.**
McFarland; post-office and station, on Chicago, Rock Island and Pacific Railway, in Newbury Township, Wabaunsee County; altitude, 1,025 feet..... **Olathe.**
Wamego.

Atlas sheets.

- McGraw**; post village in Sheridan County.
- McIntire**; creek, a left-hand branch of Big Blue River, in Potawatomi County Junction City.
- McIntosh**; station on Atchison, Topeka and Santa Fe Railway, in Oskaloosa Township, Jefferson County, on the Atchison, Topeka and Santa Fe Railway; altitude, 1,127 feet Oskaloosa.
- Macksville**; city in Farmington Township, Stafford County, on Atchison, Topeka and Santa Fe Railway; population, 147.. Pratt.
- McLain**; post-office and station on Missouri Pacific Railway, in Pleasant Township, Harvey County; altitude, 1,504 feet ... Newton.
- McLouth**; city in Union Township, Jefferson County, on Atchison, Topeka and Santa Fe Railway; altitude, 1,159 feet; population, 443..... Oskaloosa.
- Macon**; post village in Wallace County.
- Macon**; township in Harvey County; area, 36 square miles; population, 626..... Newton.
- McPherson**; central county; organized 1870; area, 900 square miles; population, 20,295; county seat, McPherson; mean magnetic declination, 10° 05'; rainfall, 28 inches; temperature, 54°.
- Saline.
Hutchinson.
Abilene.
Newton.

The surface is a rolling, treeless plain, with an elevation ranging from 1,400 to 1,700 feet. Nearly two-thirds of its area is under cultivation, mainly in wheat and corn. It is traversed by branches of the Missouri Pacific, the Chicago, Rock Island and Pacific, the St. Louis and San Francisco, and the Atchison, Topeka and Santa Fe railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Battle Hill	36	350
Bonaville	36	279
Canton	36	957
Canton		361
Castle	36	544
Windom		(1895) 128
Delmore	36	432
Empire	36	837
Galva		232
Groveland	36	592
Gypsum Creek	36	480
Harper	36	397
Hayes	36	596
Jackson	36	564
King City	36	497
Little Valley	36	618
Lone Tree	36	922
Marquette	36	920
Marquette		395
McPherson	36	3,207
McPherson		2,586
Meridian	36	695
Mound	36	1,220
Mound Ridge		464
New Gottland	36	613
Smoky Hill	36	2,078
Lindsborg		1,327
So. Sharp's Cr.	36	430
Spring Valley	36	702
Superior	36	1,083
Inman		273
Turkey Creek	36	678
Union	36	594

McPherson ; city in McPherson Township; county seat of McPherson County; population, 2,586; magnetic declination, 9° 35'; altitude, 1,497 feet. It is a junction of Atchison, Topeka and Santa Fe, Missouri Pacific and Chicago, Rock Island and Pacific railways.....	Hutchinson.
McPherson ; township in McPherson County; area, 36 square miles; population, 3,207.....	Hutchinson.
McPherson ; township in Pratt County; area, 36 square miles; population, 278.....	Pratt.
McPherson ; township in Sherman County; area, 72 square miles; population, 179.....	
Macyville ; post village in Cloud County.	
Madison ; city in Madison Township, in Greenwood County, on Verdigris River, and on Atchison, Topeka and Santa Fe Railway; altitude, 1,074 feet; population, 586.....	Emporia.
Madison ; township in Greenwood County; area, 126 square miles; population, 1,682.....	Emporia.
Madison ; township in Lincoln County; area, 36 square miles; population, 262.....	Ellsworth. Salina.
Madison ; township in Riley County; area, 58 square miles; population, 1,026.....	Junction City.
Magda ; post village in Lyon County.	
Mahaaska ; city in Union Township, Washington County, on Chicago, Rock Island and Pacific Railway; altitude, 1,603 feet; population, 66.....	Washington.
Maherville ; post-office in Eureka Township, Barton County. (Railway station "Boyd.").....	Russell.
Maize ; post village and station on Missouri Pacific Railway, in Park Township, Sedgwick County.....	Wichita.
Majella ; post village in Bourbon County.	
Mallory ; station on Missouri Pacific Railway, in Seventy-Six Township, Sumner County.....	Wellington.
Malone ; creek, a right-hand branch of Little Blue River, in Washington County.....	Marysville.
Manchester ; post village and station on Atchison, Topeka and Santa Fe Railway, in Dickinson County, in Flora Township; altitude, 1,292 feet.....	Clay Center.
Manchester ; station on St. Louis and San Francisco Railway, in Minneha Township, Sedgwick County, altitude, 1,387 feet.....	Wichita.
Manhattan ; city in Manhattan Township, county seat of Riley County, on Union Pacific, Chicago, Rock Island and Pacific, and Atchison, Topeka and Santa Fe railways; magnetic declination, 9° 50'; altitude, 1,012 feet; population, 2,916.....	Junction City.
Manhattan ; township in Riley County; area, 39 square miles; population, 3,827.....	Junction City.
Mankato ; city in Center Township, county seat of Jewell County, on Chicago, Rock Island and Pacific, and Missouri Pacific railways; altitude, 1,784 feet; population, 712.....	Mankato.
Manley ; creek, a left hand fork of Turkey Creek, in Nemaha County.....	Seneca.
Manning ; station on Atchison, Topeka and Santa Fe Railway, in Edwards Township, Clark County; altitude, 1,941 feet..	Ashland.
Manning ; post village on Missouri Pacific Railway, in Scott County; altitude, 2,916 feet.	
Manteno ; post village in Ness County.	
Mantey ; post village in Linn County.	

Atlas sheets.

- Maple**; township in Cowley County; area, 36 square miles; population, 497 Wellington.
- Maple**; post village in Spring Creek Township, Cowley County.. Burden.
- Maple**; creek, a right-hand branch of Pole Cat Creek, in Cowley County..... Wellington.
- Maple Hill**; post-office and station on Chicago, Rock Island and Pacific Railway, in Maple Hill Township, Wabaunsee County; altitude, 962 feet Wamego.
- Maple Hill**; township in Wabaunsee County; area, 73 square miles; population, 905. Esbridge.
- Mapleton**; village in Timberhill Township, Bourbon County; population, 175 (1890) Mound City.
- Marena**; township in Hodgeman County; area, 144 square miles; population, 369 Ness City.
- Margaret**; post village in Lincoln County.
- Mariadahl**; post village in Pottawatomie County; altitude, 1,062 feet.
- Marietta**; post village in Marshall County; altitude, 1,161 feet.
- Marion**; Central County; organized, 1865; area, 954 square miles; population, 20,451; county seat, Marion; mean magnetic declination, 9° 35'; rainfall, 30 inches; temperature, 54°. Abilene.
- Newton.

The surface is a rolling plain, treeless except in the valleys, somewhat eroded by streams, the elevation ranging from 1,200 to 1,500 feet. It is drained by Cottonwood River and branches. It is an agricultural county, more than half its area being under cultivation, mainly in corn, wheat, and oats. It is traversed by branches of the Atchison, Topeka and Santa Fe, and the Chicago, Rock Island and Pacific railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Blaine	36	423
Catlin	36	682
Center	52	2,430
Marion		1,759
Clark	36	562
Clear Creek	76	1,034
Colfax	36	401
Doyle	33	1,853
Florence		1,535
Durham Park	36	514
East Branch	36	518
Fair Play	15	142
Gale	34	696
Grant	70	601
Lehigh	36	913
Liberty	36	1,037
Logan	36	570
Lost Springs	36	603
Menno	36	776
Milton	36	437
Moore	36	248
Peabody	36	2,154
Peabody		1,656
Risley	36	1,434
Hillsboro		616
Summit	36	476
West Branch	36	821
Wilson	36	826

Atlas sheets.

- Marion**; city in Center Township, county seat of Marion County, on Atchison, Topeka and Sante Fe and Chicago, Rock Island and Pacific railways; magnetic declination, $9^{\circ} 30'$; altitude, 1,310 feet; population, 1,759..... Newton.
- Marion**; post village and station on Missouri Pacific Railway, in Solomon Township, Phillips County; altitude, 1,805 feet. Phillipsburg.
- Marion**; township in Bourbon County; area, 100 square miles; } Fort Scott.
population, 2,388. } Iola.
- Marion**; township in Doniphan County; area, 20 square miles; population, 678..... Atchison.
- Marion**; township in Douglas County; area, 72 square miles; } Lawrence.
population, 1,369. } Burlingame.
- Marion**; township in Lincoln County; area, 36 square miles; population, 370..... Beloit.
- Marion**; township in Nemaha County; area, 48 square miles; population, 875..... Seneca.
- Marmaton**; post village and station on Missouri Pacific Railway, in Bourbon County, in Marmaton Township; altitude, 913 feet..... Fort Scott.
- Marmaton**; township in Allen County; area, 56 square miles; population, 1,575..... Iola.
- Marmaton**; township in Bourbon County; area, 56 square miles; population, 1,279..... Fort Scott.
- Marmaton**; river; a large, right-hand branch of Missouri } Fort Scott.
River, in Missouri and in Bourbon and Allen counties. } Iola.
- Marquette**; city in Marquette Township, McPherson County, on Missouri Pacific Railway; altitude, 1,384 feet; population, 395..... Salina.
- Marquette**; township in McPherson County; area, 36 square miles; population, 920..... Salina.
- Marshall**; northeastern county; organized, 1855; area, 900 square miles; population, 24,142; county seat, Marysville; mean magnetic declination, $9^{\circ} 25'$; rainfall, 30 inches; temperature, 52° . } Marysville.
Seneca.

The surface is a rolling, treeless plain, intersected by the valleys of Big Blue and Black Vermilion rivers. The elevation ranges from 1,100 to 1,350 feet. It is an agricultural county, seven-tenths of its area being cultivated, mainly in corn. It is traversed by branches of the Union Pacific, the St. Joseph and Grand Island, and the Missouri Pacific railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Balderson	36	705
Blue Rapids	54	1,115
Irving		312
Blue Rapids City	36	1,795
Blue Rapids		1,189
Center	36	639
Clear Fork	54	1,002
Cleveland	36	479
Cottage Hill	36	554
Elm Creek	36	566
Franklin	36	742

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Guittard	36	1, 174
Beattie		606
Herkimer	72	633
Logan		837
Marysville	36	2, 857
Marysville		2, 212
Murray	54	1, 664
Axtell		594
Noble	48	1, 183
Vermilion		(1895) 253
Oketo	36	1, 008
Oketo		322
Richland	36	899
Rock	36	661
St. Bridget	36	1, 014
Summerfield		374
Vermilion	42	1, 987
Frankfort		1, 051
Walnut	36	634
Waterville	36	1, 212
Waterville		565
Wells	36	712

Atlas sheets

- Marshall**; creek, a small branch of Missouri River, in Wyandotte County; length, 4 miles. Kansas City.
- Martin**; a hamlet in Saline Township, in Ellis County. Plainville.
- Martin**; township in Kiowa County; area, 99 square miles; population, 273. { Kinsley.
Spearville.
- Martin**; township in Smith County; area, 36 square miles; population, 515. Smith Center.
- Martin**; creek, a left-hand branch of Cottonwood River, in Marion County. Cottonwood Falls.
- Marysville**; city in Marysville Township, county seat of Marshall County; magnetic declination, 9° 00'; population, 2,212. It is situated in the valley of Big Blue River on St. Joseph and Grand Island and Union Pacific railways; altitude, 1,153 feet. Marysville.
- Marysville**; township in Marshall County; area, 36 square miles; population, 2,857. Marysville.
- Marysville**; township in Miami County; area, 54 square miles; population, 1,618. Olathe.
- Matfield**; township in Chase County; area, 108 square miles; population, 738.
- Matfield Green**; city in Matfield Township, Chase County, on Atchison, Topeka and Santa Fe Railway; population, 187. Cottonwood Falls.
- Mathews**; branch, a left-hand branch of Turkey Creek, in Nemaha County. Seneca.
- Mathewson**; post village and station on Kansas City, Fort Scott and Memphis Railway, in Neosho Township, Labette County; altitude, 851 feet. Parsons.
- Maud**; township in Morton County; population, 29; abolished since 1896.
- Maxson**; post village in Osage County.
- Mayday**; post village in Riley County.

Atlas sheets.

- Mayday**; township in Riley County; area, 32 square miles; population, 522 Marysville.
- Mayetta**; post village on Chicago, Rock Island and Pacific Railway, in Jackson County; altitude, 1,187 feet.
- Mayfield**; post village and station on Atchison, Topeka and Santa Fe Railway, in Osborne Township, Sumner County; altitude, 1,285 feet Caldwell.
- Mayo**, post village in Comanche County.
- Mayview**; post village in Brown Creek Township, Jewell County Mankato.
- Maywood**; post-office in Prairie Township, Wyandotte County. Kansas City.
- Mead**; creek, a right-hand branch of South Fork of Ninnescah River, in Kingman County Kingman.
- Meade**; city in Meade Center Township; county seat of Meade County, on Chicago, Rock Island and Pacific Railway; magnetic declination, $10^{\circ} 55'$; altitude, 2,505 feet; population, 259 Meade.
- Meade**; southwestern county; organized, 1885; area, 975 square miles; population, 1,651; county seat, Meade; mean magnetic declination, $10^{\circ} 20'$; rainfall, 22 inches; temperature, 57° Meade.

The surface is a treeless plain, level or nearly so, and sandy in the north, greatly eroded and broken in the south. The elevation ranges from 2,000 to 2,700 feet. It is drained by Crooked Creek and other branches of Cimarron River. The county is traversed by a branch of the Chicago, Rock Island and Pacific Railway. Being sparsely populated, only a small portion of its area is cultivated, mainly in wheat, sorghum, and kaffir corn.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Cimarron	115	74
Crooked Creek	54	200
Eden	66	58
Fowler	104	242
Logan	110	124
Meade Center	108	489
Meade		259
Mertilla	78	37
Odee	95	139
Sand Creek	105	123
West Plains	134	165
West Plains		28

Atlas sheets.

- Meade Center**; township in Meade County; area, 108 square miles; population, 489 Meade.
- Meadow**; creek, a small, left-hand tributary to Verdigris River, in Wilson County Fredonia.
- Medford**; township in Reno County; area, 32 square miles; population, 391 Lyons.
- Media**; post village in Douglas County.
- Medicine**; township in Rooks County; area, 36 square miles; population, 253 Plainville.

Atlas sheets.

- Medicine**; creek, a right-hand branch of South Fork Solomon River, in Rooks County..... Plainville.
- Medicine Lodge**; city in Medicine Lodge Township, county seat of Barber County, on Atchison, Topeka and Santa Fe Railway; population, 709; altitude, 1,475 feet..... Medicine Lodge.
- Medicine Lodge**; township in Barber County; area, 120 square miles; population, 1,246. { Medicine Lodge.
Anthony.
- Medicine Lodge**; river, a left-hand branch of Salt Fork of the Arkansas, in Barber and Kiowa counties; length, 100 miles. { Coldwater.
Medicine Lodge.
Anthony.
- Medina**; post-office on Union Pacific Railway, in Kentucky Township, in Jefferson County; altitude, 851 feet..... Oskaloosa.
- Medora**; post village on Chicago, Rock Island and Pacific Railway, in Reno County; altitude, 1,484 feet.
- Medora**; township in Reno County; area, 26 square miles; population, 303.
- Medway**; township in Hamilton County; area, 108 square miles; population, 158.
- Melrose**; post village in Cherokee County.
- Melvorn**; city in Melvorn Township, Osage County, on Atchison, Topeka and Santa Fe Railway; population, 442; altitude, 994 feet..... Burlingame.
- Melvorn**; township in Osage County; area, 45 square miles; population, 1,451. { Burlington.
Burlingame.
- Melvin**; creek, a right-hand branch of Mill Creek, in Washington County..... Washington.
- Menager**; post village in Wyandotte County.
- Mendota**; post village in Trego County.
- Menlo**; post village on Union Pacific Railway, in Thomas County; altitude, 2,945 feet.
- Menno**; township in Marion County; area, 36 square miles; population, 776.
- Menoken**; post-office and station on Union Pacific Railway, in Menoken Township, Shawnee County; altitude, 897 feet.... Topeka.
- Menoken**; township in Shawnee County; area, 47 square miles; population, 738..... Topeka.
- Mentor**; post village and station on Union Pacific Railway, in Walnut Township, Saline County..... Salina.
- Mercer**; creek, a branch of South Fork Cottonwood River, in Chase County..... Cottonwood Falls.
- Meredith**; post village in Cloud County.
- Meredith**; township in Cloud County; area, 36 square miles; population, 500..... Minneapolis.
- Meriden**; city in Rock Creek Township, Jefferson County, on Atchison, Topeka and Santa Fe Railway; altitude, 978 feet; population, 492.
- Meriden**; creek, a left-hand branch of Middle Shoo Fly Creek, in Sumner County..... Wellington.
- Meridian**; township in McPherson County; area, 36 square miles; population, 695..... Newton.
- Merriam**; post village and station on Kansas City, Fort Scott and Memphis Railway, in Shawnee Township, Johnson County..... Kansas City.
- Mertilla**; post village in Meade County.

Atlas sheets.

Mertilla; township in Meade County; area, 78 square miles; population, 37.

Messer; post village and station on St. Louis and San Francisco Railway, in Cherokee County, Shawnee Township Joplin.

Meyano; creek, a right-hand branch of Cross Creek, in Pottawatomie County Wamego.

Miami; eastern county; organized, 1855; area, 588 square miles; population, 20,175; county seat, Paola; mean magnetic declination, 9° 20'; rainfall, 36 inches; temperature, 54.° { Lawrence.
Olathe.
Garnett.
Mound City.

The surface is a plain, somewhat broken by erosion, and treeless except in stream valleys. The elevation ranges from 850 to 1,100 feet. It is an agricultural county, nearly two-thirds of its area being under cultivation, mainly in corn. It is traversed by branches of the Missouri Pacific, the Atchison, Topeka and Santa Fe, and the Kansas City, Fort Scott and Memphis railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Marysville	54	1,618
Miami	49	935
Middle Creek	72	1,355
Mound	32	708
Osage	40	1,042
Fontana		(1895) 248
Osawatomie	39	3,734
Osawatomie		2,755
Paola	32	3,876
Paola		3,147
Richland	72	1,469
Stanton	44	908
Sugar Creek	45	901
Ten Mile	50	1,000
Wea	44	1,599
Louisburg		638
Valley	28	1,030

Atlas sheets.

Miami; post-office and station on Kansas City, Fort Scott and Gulf Railway, in Sheridan Township, Linn County Mound City.

Miami; township in Miami County; area, 49 square miles; population, 935. { Olathe.
Mound City.

Miami; township in Reno County; area, 36 square miles; population, 363.

Miami; creek, runs across the border into Missouri Mound City.

Michigan; station on Missouri Pacific Railway, in Junction Township, Osage County Burlingame.

Michigan; township in Scott County; area, 128 square miles; population, 75.

Mid Cedar; creek, a left-hand branch of Cedar Creek, in Smith County Phillipsburg.

Middle; creek, a left-hand branch of Cottonwood River, in Chase County Cottonwood Falls.

Middle; creek, a right-hand branch of Osage River, in Franklin County Lawrence.

	Atlas sheets.
Middle ; creek, a left-hand tributary to Osage River, in Linn County.	{ Garnett. Mound City.
Middle ; creek, a left-hand branch of Osage River, in Linn and Miami counties; length, 25 miles.	{ Mound City. Olathe.
Middle ; creek, a left-hand branch of Marias des Cygnes River, in Miami and Linn counties	Mound City.
Middle ; creek, a branch of East Fork of Neosho River, in Morris County	Esckridge.
Middle Branch ; fork of Mill Creek, in Waubensee County....	Esckridge.
Middle Cana ; creek, right-hand branch of Verdigris River, in Chautauqua county	Sedan.
Middle Cow ; creek, left-hand branch of Cow Creek, in Crawford County	Joplin.
Middle Creek ; township in Miami County; area, 72 square miles; population, 1,355.....	Olathe.
Middle Pipe ; creek, fork of Pipe Creek, in Ottawa and Cloud counties	Minneapolis.
Middle Shoo Fly ; creek, rises in Sumner County, Kansas, and flows south into Indian Territory.....	Wellington.
Middletown ; post-office in Verdigris Township, Wilson County.	Fredonia.
Midway ; city in Baker Township, Crawford County, on Kansas City, Fort Scott and Memphis Railway; population, 180.	Joplin.
Midway ; station on Missouri Pacific Railway, in Empire Township, Ellsworth County	Ellsworth.
Mikesell ; township in Rawlins County; area, 36 square miles; population, 98.	
Milan ; city in Ryan Township, Sumner County, on Atchison, Topeka and Santa Fe Railway; population, 229 (1890); altitude, 1,221 feet	Caldwell.
Milford ; post village on Union Pacific Railway, in Geary County; altitude, 1,098 feet.	
Milford ; township in Geary County; area, 48 square miles; population, 754.....	Junction City.
Millard ; post-office in Wheatland Township, Barton County ..	Russell.
Millbrook ; village in Millbrook Township, Graham County ...	Hill.
Millbrook ; township in Graham County; area, 44 square miles; population, 207.....	Hill.
Mill ; creek, a left-hand branch of Marmaton River, in Bourbon County	Fort Scott.
Mill ; creek, township in Bourbon County; area, 56 square miles; population, 1,113.....	Fort Scott.
Mill ; creek, a small branch of the Missouri River, in Doniphan County; length, 5 miles.....	Atchison.
Mill ; creek, a left-hand branch of Kansas River, in Johnson County; length, 12 miles.	{ Kansas City. Olathe.
Mill ; creek, a right-hand branch of Solomon River, in Mitchell County	Beloit.
Mill ; creek, a right-hand branch of Vermilion River, in Pottawatomie county	Wamego.
Mill ; creek, township in Pottawatomie County; area, 42 square miles; population, 1,184.	{ Seneca. Wamego.
Mill ; creek, a right-hand branch of Big Blue River, in Riley County	Junction City.

Atlas sheets.

Mill ; creek, a right-hand branch of Kansas River, in Wabaunsee County.	{ Eskridge. Wamego. Topeka.
Mill ; creek, township in Wabaunsee County; area, 75 square miles; population, 664.....	Eskridge.
Mill ; creek, a right-hand branch of Little Blue River, in Washington and Republic counties.	{ Washington. Marysville.
Mill ; creek, a small, left-hand branch of Kansas River in Wyandotte County; six miles long	Kansas City.
Mill Creek ; township in Washington County; area, 36 square miles; population, 698.....	Washington.
Miller ; post village on Missouri Pacific Railway, in Lyon county; altitude, 1,114 feet.	
Miller ; creek, a right-hand branch of Republican River, in Clay County	Clay Center.
Millerton ; post village and station on Missouri Pacific Railway, in Illinois Township, Sumner County; altitude, 1,346 feet ..	Caldwell.
Millwood ; post village in Leavenworth County.	
Milo ; post village and station on Atchison, Topeka and Santa Fe Railroad, in Salt Creek Township, Lincoln County; altitude, 1,296 feet.....	Minneapolis.
Milton ; station on Atchison, Topeka and Santa Fe Railway, in Elm Creek Township, Morris County	Parkerville.
Milton ; post village and station on Missouri Pacific Railway, in Eden Township, Sumner County; altitude, 1,453 feet....	Caldwell.
Milton ; township in Butler County; area, 36 square miles; population, 914	Wichita.
Milton ; township in Marion County; area, 36 square miles; population, 437.....	Cottonwood Falls.
Miltonvale ; city in Starr Township, Cloud County, on Union Pacific and Atchison, Topeka and Santa Fe railways; altitude, 1,375 feet; population, 389	Clay Center.
Mina ; post village on Kansas City and Northern Railway, in Marshall County; altitude, 1,471 feet.	
Mine ; creek, a right-hand branch of Osage River, in Linn County	Mound City.
Mineral ; post village in Cherokee County.	
Mineral ; township in Cherokee County; area, 23 square miles; population, 4,440.....	Joplin.
Mineral Point ; post village in Anderson County.	
Minersville ; post village in Sibley Township, Cloud County ..	Concordia.
Mingo ; post village in Thomas County.	
Mingona ; village in Mingona Township, Barber County.....	Medicine Lodge.
Mingona ; township in Barber County; area, 60 square miles; population, 279.....	Medicine Lodge.
Minneapolis ; city in Concord Township; county seat of Ottawa County, on Union Pacific and Atchison, Topeka and Santa Fe railways; altitude, 1,255 feet; population, 1,472	Minneapolis.
Minneha ; post village in Sedgwick County.	
Minneha ; township in Sedgwick County; area, 36 square miles; population, 518	Wichita.
Minneola ; city in Appleton Township, Clark County, on Chicago, Rock Island and Pacific Railway; altitude, 2,558 feet; population, 38	Meade.

Atlas sheets.

- Mirage**; township in Rawlins County; area, 72 square miles; population, 135.
- Mission**; post village in Johnson County.
- Mission**; township in Brown County; area, 90 square miles; population, 5,607. { Atchison.
Hiawatha.
- Mission**; township in Johnson County; area, 32 square miles; population, 849.
- Missouri**; township in Morton County; area, 71 square miles; (abolished since 1896).
- Mission**; township in Neosho County; area, 48 square miles; population, 1,865. { Iola.
Parsons.
- Mission**; township in Shawnee County; area, 42 square miles; population, 1,011. { Topeka.
Burlingame.
- Mission**; creek, township in Wabaunsee County; area, 80 square miles; population, 1,087. { Eskridge.
Burlingame.
- Mission**; a small branch of the Missouri River, in Doniphan County; length, 6 miles. Atchison.
- Mission**; creek, a small left-hand branch of Neosho River, in Morris County Eskridge.
- Mission**; creek; a right-hand branch of Kansas River, in Shawnee and Wabaunsee counties. { Burlingame.
Eskridge.
Topeka.
- Missouri**; river; one of the main branches of the Mississippi River. It rises in the Rocky Mountains in western Montana and northwestern Wyoming in three main branches, known as Jefferson, Madison, and Gallatin, which unite at the foot of Gallatin Valley at the point known as "Three Forks of the Missouri." After a course of upward of 4,000 miles, flowing first northward and then eastward, and finally southeastward, it joins the Mississippi a few miles above St. Louis. It forms a part of the east boundary of Kansas, from the parallel of 40° north latitude to Kansas City. In this part of its course it has an average width of about half a mile, and carries a vast amount of sediment. Its slope is very gentle, being winding, flowing in a broad and fertile bottom land, beneath bluffs 200 to 300 feet high. Its course is shifting and unstable, frequently cutting off bends and undermining the bluffs. The river is navigable from its mouth to Great Falls in Montana.
- Mitchell**; Northern county; organized, 1870; area, 720 square miles; population, 13,267; county seat, Beloit; mean magnetic declination, 10° 40'; rainfall, 25 inches; temperature, 53°. { Mankato.
Beloit.
Smith Center.
Osborne.
- The surface is treeless and broken, ranging in elevation from 1,400 feet in the valley of Solomon River, which crosses the county from west to east, to nearly 1,900 feet in the Blue Hills, in the southwestern part of the county. It is an agricultural county, more than half its area being cultivated, mainly in corn. It is crossed by a branch of the Missouri Pacific Railway.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Asherville	36	651
Beloit	36	3, 026
Beloit		2, 108
Bloomfield	36	530
Blue Hill	36	291
Carr Creek	36	419
Cawker	36	1, 459
Cawker		795
Center	36	394
Custer	36	357
Eureka	36	349
Glenelder	36	1, 045
Glenelder		376
Hayes	36	417
Logan	36	634
Lulu	36	563
Pittsburg	36	501
Plum Creek	36	468
Round Spring	36	232
Salt Creek	36	301
Solomon Rapids	36	502
Turkey Creek	36	554
Walnut Creek	36	574

Atlas sheets.

- Mitchell**; post village and station on Atchison, Topeka and Santa Fe Railway, in Atlanta Township, Rice County; altitude, 1,740 feet. Lyons.
- Mitchell**; township in Nemaha County; area, 36 square miles; population, 789. Seneca.
- Mitchell**; township in Rice County; area, 36 square miles; population, 465.
- Mitchell**; township in Stanton County; area, 82 square miles; population, 58.
- Modell**; township in Norton County; area, 42 square miles; population, 191. Norton.
- Modoc**; post village on Missouri Pacific Railway, in Scott County; altitude, 3,131 feet.
- Moline**; city in Wild Cat Township, Elk County, on Atchison, Topeka and Santa Fe Railway; magnetic declination, 8° 50'; altitude, 1,047 feet; population, 720. Sedan.
- Moll**; creek, a left-hand branch of Republican River, in Clay County. Clay Center.
- Mona**; post-office in Sumner Township, Reno County. Cheney.
- Monett**; post village in Chautauqua County.
- Monitor**; post village in McPherson County.
- Monmouth**; post village and station on Kansas City, Fort Scott and Memphis Railway, in Sheridan Township, Crawford County; altitude, 879 feet. Joplin.
- Monmouth**; township in Shawnee County; area, 56 square miles; population, 1,325. Burlingame.
- Monon**; post village in Stanton County.
- Monroe**; township in Anderson County; area, 31 square miles; population, 3,209. Garnett.

Atlas sheets.

- Monrovia**; post village and station on Missouri Pacific Railway, in Atchison County; altitude, 1,038 feet..... Atchison.
- Montana**; post village in Montana Township, Labette County. Parsons.
- Montana**; township in Jewell County; area, 36 square miles; population, 597..... Mankato.
- Montana**; township in Labette County; area, 30 square miles; population, 772..... Parsons.
- Monterey**; post village in Riley County; altitude, 1,062 feet.
- Montezuma**; post village and station on Dodge City, Montezuma and Trinidad Railroad, in Montezuma Township, Gray County Dodge.
- Montezuma**; township in Gray County; area, 144 square miles; population, 120. { Dodge.
Garden.
- Monticello**; post village in Monticello Township, Johnson County..... Olathe.
- Monticello**; township in Johnson County; area, 41 square miles; population, 1,414. { Olathe.
Kansas City.
- Montgomery**; southeastern county; organized, 1869; area, 648 square miles; population, 23,824; county seat, Independence; mean magnetic declination, $8^{\circ} 10'$; rainfall, 35 inches; temperature, 56° . { Independence.
Sedan.

The surface is an undulating plain, with little woodland, and that in the valleys of the streams. It is drained by Fall River, flowing from north to south across the county; the elevation ranges from 700 to 900 feet; it is predominantly an agricultural county, one-half its area being under cultivation, mainly in corn and wheat. It is traversed by numerous branches of the Missouri Pacific, St. Louis, and San Francisco and Atchison, Topeka and Santa Fe systems.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Caney.....	72	2,083
Caney.....		936
Cherokee.....	38	725
Cherry.....	40	2,885
Cherryvale.....		2,069
Drum Creek.....	34	755
Fawn Creek.....	72	1,302
Independence.....	70	5,180
Independence.....		3,677
Liberty.....	40	1,096
Liberty.....		298
Louisburg.....	72	1,920
Elk.....		698
Parker.....	34	4,883
Coffeyville.....		4,020
Rutland.....	72	1,102
Sycamore.....	70	1,264
West Cherry.....	40	680

Atlas sheets.

- Mont Ida**; post village and station on Missouri Pacific Railway, in Anderson County..... Garnett.
- Montrose**; city in Washington Township, Jewell County, on Chicago, Rock Island and Pacific Railway; altitude, 1,654 feet; population, 71..... Mankato.
- Monument**; post village in Logan County, on Union Pacific Railroad; altitude, 3,180 feet.
- Monument**; township in Logan County; area, 108 square miles; population, 286.
- Moodyville**; post-office in Rock Creek Township, in Pottawatomie County..... Wamego.
- Moon**; branch, a left-hand branch of Verdigris River, in Lyon County..... Emporia.
- Mooney**; creek, a small right-hand tributary to Big Stranger Creek, in Jefferson County..... Oskaloosa.
- Moonlight**; post village in Dickinson County.
- Moore**; township in Barber County; area, 45 square miles; population, 300. { Anthony.
Medicine Lodge.
- Moore**; township in Marion County; area, 36 square miles; population, 248.
- Moran**; city in Marmaton Township, Allen County, on Atchison, Topeka and Santa Fe Railway; altitude, 1,098 feet; population, 568..... Iola.
- Moray**; post village in Doniphan County.
- Morehead**; post village on Atchison, Topeka and Santa Fe Railway, in Neosho County; altitude, 897 feet.
- Morgan**; post village in Chase County.
- Morgan**; township in Thomas County; area, 108 square miles; population, 761.
- Morganville**; city in Sherman Township, Clay County, on Chicago, Rock Island and Pacific and Union Pacific Railways; population, 259 (1895); altitude, 1,234 feet..... Clay Center.
- Morlan**; post village in Graham County.
- Morlan**; township in Graham County; area, 110 square miles; population, 342..... Hill.
- Morrill**; city in Morrill Township, Brown County; a station on St. Joseph and Grand Island Railway; population, 362..... Hiawatha.
- Morrill**; township in Brown County; area, 42 square miles; population, 1,436..... Hiawatha.
- Morris**; central county; organized 1858; area, 686 square miles; population, 11,227; county seat, Council Grove; Mean magnetic declination, 9° 20'; rainfall, 30 inches; temperature, 54°. { Parkerville.
Eskridge.

The surface is a rolling, treeless plain, drained by Neosho River. The elevation ranges from 1,100 to 1,500 feet. Of the area one-half is cultivated, mainly in corn. The county is traversed by branches of the Chicago, Rock Island and Pacific, the Missouri Pacific, and the Missouri, Kansas and Texas railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Clark Creek.....	52	320
Council Grove.....	36	2, 849
Council Grove.....		2, 415
Diamond Valley.....	76	568
Elm Creek.....	74	1, 001
Wilsey.....		210
Four Mile.....	36	358
Garfield.....	36	647
Grandview.....	66	565
Highland.....	36	420
Neosho.....	41	674
Ohio.....	36	716
Dwight.....		130
Parker.....	61	813
Parkerville.....		161
Rolling Prairie.....	48	978
White.....		430
Valley.....	36	888
Dunlap.....		398
Warren.....	42	433

Atlas sheets.

Morris ; station on Atchison, Topeka and Santa Fe Railway, in Shawnee Township, Wyandotte County	Kansas City.
Morris ; township in Sumner County; area, 36 square miles; population, 330	Caldwell.
Morrowville ; city in Mill Creek Township, Washington County, on Missouri Pacific Railway; population, 100.....	Washington.
Morse ; post village on Atchison, Topeka and Santa Fe Railway, in Johnson County; altitude, 1,087 feet.	
Mortimer ; post-office and station on Kansas City, Fort Scott and Memphis Railway, in Osage Township, Labette County.	Parsons.
Mortimer ; creek, a left-hand branch of Solomon River, in Cloud and Ottawa counties	Minneapolis.
Morton ; southwestern county; organized, 1886; area, 729 square miles; population, 320; county seat, Richfield; mean magnetic declination, 10° 50'; rainfall, 15 inches; temperature, 56°	Vilas.

The surface is a treeless plain, drained by Cimarron River. Little of its area is under cultivation.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Cimarron.....	306	40
Richfield.....	180	27
Taloga.....	243	114

Atlas sheets.

Morton; post village in Morton County.

Morton; township in Morton County; population, 39; abolished since 1896.

Morton; township in Ottawa County; area, 36 square miles; { Minneapolis.
population, 654. { Salina.

Morton; township in Sedgwick County; area, 36 square miles;
population, 709 Chaney.

Atlas sheets.

- Morton**; township in Wallace County; area, 138 square miles; population, 159.
- Moscow**; post village in Stevens County.
- Moscow**; township in Stevens County; area, 36 square miles; population, 65.
- Mosquito**; creek, a branch of Missouri River, in Doniphan County; length, 6 miles. Atchison.
- Mosquito**; creek, a right-hand branch of Spring Creek, in Jackson and Nemaha counties. Hiawatha.
- Mosquito**; creek, a left-hand branch of Big Blue River, in Marshall County. Marysville.
- Mound**; township in McPherson County; area, 36 square miles; population, 1,220. { Hutchinson.
Newton.
- Mound**; township in Miami County; area, 32 square miles; population, 708. { Mound City.
Garnett.
- Mound**; township in Phillips County; area, 36 square miles; population, 499. { Phillipsburg.
Norton.
- Mound**; branch, a right-hand branch of Elk River, in Elk County. Sedan.
- Mound**; city in Mound City Township, county seat of Linn County, on Kansas City, Fort Scott and Memphis Railway; magnetic declination, 8° 10'; population, 887. Mound City.
- Mound City**; township in Linn County; area, 50 square miles; population, 1,826. Mound City.
- Mound Ridge**; city in Mound Township, McPherson County, on Missouri Pacific Railway; altitude, 1,486 feet; population, 464. Hutchinson.
- Mound Valley**; city in Mound Valley Township, Labette County, on St. Louis and San Francisco Railway; altitude, 824 feet; population, 509. Parsons.
- Mound Valley**; township in Labette County; area, 64 square miles; population, 1,621. { Parsons.
Independence.
- Mountain**; creek, a right-hand branch of Horseshoe Creek, in Marshall County. Marysville.
- Mount Ayr**; a hamlet in Mount Ayr Township, Osborne County. Osborne.
- Mount Ayr**; township in Osborne County; area, 36 square miles; population, 405. { Osborne.
Plainville.
- Mount Hope**; city in Greeley Township, Sedgwick County, on Missouri Pacific Railway; population, 278. Cheney.
- Mount Olivet**; post village in Leavenworth County.
- Mount Pleasant**; post village in Atchison County.
- Mount Pleasant**; township in Atchison County; area, 48 square miles; population, 1,517. { Atchison.
Oskaloosa.
- Mount Pleasant**; township in Labette County; area, 36 square miles; population, 1,210. Parsons.
- Mouse**; creek, a left-hand branch of Verdigris River, in Montgomery County. Independence.
- Mozler**; creek, a small, left-hand branch of Neosho River, in Morris County. Eskridge.
- Mud**; creek, a right-hand branch of Smoky Hill River, in Ellsworth County. Ellsworth.
- Mud**; creek, a right-hand branch of Sand Creek, in Harvey County. { Newton.
Wichita.
- Mud**; creek, a right-hand branch of Cedar Creek, in Jackson County. Hiawatha.

	Atlas sheets.
Mud ; creek, a left-hand branch of Kansas River, in Douglas and Jefferson counties.....	Oskaloosa.
Mud ; creek, a right-hand branch of South Fork of Ninnescah River, in Sedgwick County.....	Cheney.
Muddy ; creek, a left-hand tributary of Walnut River, in Butler and Cowley counties.....	{ Eldorado. Burden. Wellington.
Muddy ; creek, a left-hand tributary of Walnut River, in Cowley County.....	Wellington.
Muddy ; creek, a left-hand branch of Kansas River, in Shawnee, Jefferson, and Jackson counties.....	Topeka.
Mulberry ; township in Clay County; area, 40 square miles; population, 836.....	{ Clay Center. Mulberry.
Mulberry ; creek, a left-hand branch of Osage River, in Bates County.....	Mound City.
Mulberry ; creek, a left-hand branch of Walnut Creek, in Brown County.....	Hiawatha.
Mulberry ; creek, a right-hand branch of Arkansas River, in Ford County.....	{ Spearville. Dodge.
Mulberry ; creek, a left-hand branch of Duck Creek, in Montgomery County.....	Independence.
Mulberry ; creek, a right-hand branch of Clarks Creek, in Morris County.....	Parkerville.
Mulberry ; creek, a right-hand branch of Saline River, in Saline County.....	Salina.
Mulberry ; creek, a left-hand branch of Will Creek, in Wabaunsee County.....	Wamego.
Mulberry Grove ; city in Washington Township, Crawford County, on Kansas City, Fort Scott and Memphis Railway; population, 240.....	Fort Scott.
Muldrow ; post village in Sherman County.	
Mullinville ; city in Martin Township, Kiowa County, on Chicago, Rock Island and Pacific and Wichita and Western railways; altitude, 2,318 feet.....	Kinsley.
Mulvane ; city in Rockford Township, Sedgwick County; population, 199. No post-office.....	Wellington.
Mulvane ; city in Gore Township, Sumner County, on Atchison, Topeka and Santa Fe Railway; altitude, 1,230 feet; population, 340.....	Wellington.
Mumford ; post village in Barber County.	
Muncie ; post-office and station on Union Pacific Railway, in Wyandotte Township, Wyandotte County; altitude, 785 feet.	Kansas City.
Muncie ; creek, a small, left-hand branch of Kansas River, in Wyandotte County; length, 5 miles.....	Kansas City.
Munden ; post village on Chicago, Rock Island and Pacific Railway, in Republic County; altitude, 1,626 feet.	
Munjoy ; post village in Wheatland Township, in Ellis County.	Hays.
Munker ; creek, a left-hand tributary to Neosho River and branch of East Fork.....	Esksridge.
Murdock ; post village in Butler County.	
Murdock ; station on Atchison, Topeka and Santa Fe Railway, in Dale Township, Kingman County; altitude, 1,472 feet....	Cheney.
Murdock ; township in Butler County; area, 36 square miles; population, 633.....	Wichita.
Murray ; township in Marshall County; area, 54 square miles; population, 1,664.....	Seneca.

Atlas sheets.

Muscotah ; city in Grasshopper Township, Atchison County; a station on Missouri Pacific Railway; altitude, 960 feet; population, 524 (1890).....	Hiawatha.
Museum ; post village in Sheridan County.	
Mustang ; creek, a right-hand branch of Salt Fork Creek, in Comanche County.....	Coldwater.
Mute ; creek, a right-hand branch of Salt Creek, in Osage County.....	Burlingame.
Myer ; creek, a left-hand branch of Mill Creek, in Washington County.....	Washington.
Myers Valley ; post village in Pottawatomie County.	
Myra ; a hamlet in Belmont Township, Woodson County.....	Fredonia.
Myrtle ; post village in Phillips County.	
Nadeau ; post village in Jackson County.	
Nance ; post village in Phillips County.	
Narema ; station on Atchison, Topeka and Santa Fe Railway, in Narema Township, Hodgeman County.....	Ness.
Narka ; post village and station on Chicago, Rock Island and Pacific Railway, in Albion Township, Republic County; altitude, 1,583 feet.....	Washington.
Naron ; post village in Pratt County.	
Naron ; township in Pratt County; area, 66 square miles; population, 411.	{ Pratt. Kinsley.
Nashville ; post village and station on Atchison, Topeka and Santa Fe Railway, in Liberty Township, Kingman County; altitude, 1,750 feet.....	Anthony.
National Military Home ; post village in Leavenworth County.	
Natoma ; post village and station on Union Pacific Railway, in Liberty Township, Osborne County; altitude, 1,834 feet....	Plainville.
Natoma ; township in Osborne County; area, 36 square miles; population, 238.	
Natrona ; station on Chicago, Rock Island and Pacific Railway, in Logan Township, Pratt County; altitude, 1,880 feet.....	Pratt.
Navarre ; post village and station on Atchison, Topeka and Santa Fe Railway, in Logan Township, Dickinson County; altitude, 1,350 feet.	
Neal ; city on Missouri Pacific Railway, in Quincy Township, Greenwood County; altitude, 955 feet; population, 144 (1890).....	Eureka.
Nearman ; station on Missouri Pacific Railway, in Quindaro Township, Wyandotte County; altitude, 753 feet.....	Kansas City.
Neely ; post village in Leavenworth County; altitude, 914 feet.	
Negro ; creek, a right-hand branch of South Fork of Ninnescah River, in Kingman County.....	Kingman.
Nehring ; creek, a right-hand branch of Mill Creek, in Wabaunsee County.....	Eskridge.
Nekoma ; post village and station on Atchison, Topeka and Santa Fe Railway, in Union Township, Rush County; altitude, 2,038 feet.....	Larned.
Nelson ; post village in Crawford County.	
Nelson ; township in Cloud County; area, 36 square miles; population, 591.	{ Concordia. Minneapolis. Washington. Clay Center.
Nemaha ; township in Nemaha County; area, 36 square miles; population, 664.....	Seneca.

Atlas sheets.

Nemaha; northeastern county; organized, 1855; area, 720 square miles; population, 20,247; county seat, Seneca. }
 Mean magnetic declination, 8° 55'; rainfall, 32 inches; }
 temperature, 52°. } Seneca.
 } Hiawatha.

The surface is a rolling, treeless plain, drained by Nemaha River. The elevation ranges from 1,100 to 1,400 feet. It is an agricultural county, seven-tenths of its area being under cultivation, mainly in corn. It is traversed by branches of the Missouri Pacific, St. Joseph and Grand Island, and Chicago, Rock Island and Pacific railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Adams	36	602
Berwick	36	882
Capioma	36	790
Clear Creek	48	871
Gilman	36	1,056
Oneida		338
Granada	36	712
Harrison	36	1,209
Goffs		359
Home	54	1,570
Centralia		701
Illinois	36	1,050
Corning		404
Marion	48	875
Mitchell	36	789
Nemaha	36	664
Neuchatel	36	646
Red Vermilion	36	683
Reilly	36	733
Richmond	36	2,861
Seneca		1,927
Rock Creek	36	2,163
Sabetha		1,446
Washington	36	953
Wetmore	36	1,138
Wetmore		458

Atlas sheets.

Nemaha; river, a right-hand branch of Missouri river, in Nemaha County Seneca.
Neodesha; city on St. Louis and San Francisco and Missouri Pacific railways, in Neodesha Township, Wilson County; population, 2,019; altitude, 796 feet. Independence.
Neodesha; township in Wilson County; area, 36 square miles; population, 2,842. Independence.
Neola; post village on Missouri Pacific Railway, in Stafford County; altitude, 1,807 feet.
Neosho; township in Cherokee County; area, 60 square miles; } Joplin.
 population, 1,261. } Parsons.
Neosho; township in Coffey County; area, 48 square miles; }
 population, 721 Burlington.
Neosho; township in Labette County; area, 30 square miles; }
 population, 570 Parsons.

Neosho; township in Morris County; area, 41 square miles; population, 674. Atlas sheets.
Parkerville.
Eskridge.

Neosho; southeastern county; organized, 1864; area, 576 square miles; population, 18,297; county seat, Erie; mean magnetic declination, 10° 05'; rainfall, 37 inches; temperature, 55°. Fredonia.
Iola.
Independence.
Parsons.

The surface is an undulating plain, treeless except in stream valleys, drained by Neosho River. The elevation ranges from 800 to 1,000 feet. It is an agricultural county, more than half its area being cultivated, mainly in corn and oats. It is traversed by branches of the Missouri, Kansas and Texas and Atchison, Topeka and Santa Fe railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Big Creek.....	48	997
Canaville.....	48	1,032
Centerville.....	48	1,055
Chetopa.....	48	1,441
Erie.....	48	2,240
Erie.....	-----	1,212
Grant.....	48	1,335
Ladore.....	48	984
Lincoln.....	48	914
Mission.....	48	1,865
Osage Mission.....	-----	1,046
Shiloh.....	48	887
Tioga.....	48	4,504
Chanute.....	-----	3,583
Walnut Grove.....	48	1,043

Neosho; river, a large left-hand branch of the Arkansas River, heading in southeastern Kansas and flowing generally in a southerly course across Cherokee Nation to its mouth, in Indian Territory, where it is known as Grand River. In Kansas it traverses Morris, Lyon, Coffey, Woodson, Allen, Neosho, Labette, and Cherokee counties. Atlas sheets.
Parkerville.
Eskridge.
Emporia.
Burlington.
Fredonia.
Iola.
Parsons.
Cottonwood Falls.

Neosho Falls; city on Atchison, Topeka and Santa Fe and Missouri, Kansas and Texas railways, in Neosho Falls Township, Woodson County; population, 710; altitude, 973 feet. Burlington.

Neosho Falls; township in Woodson County; area, 36 square miles; population, 1,517. Fredonia.
Burlington.

Neosho Rapids; city on Atchison, Topeka and Santa Fe Railway, in Jackson Township, Lyon County; population, 308 (1890); altitude, 1,092 feet. Burlington.

Nescatunga; city in Nescatunga Township, Comanche County; population, 46 (1890). Coldwater.

Nescatunga; township in Comanche County; area, 45 square miles; population, 47. Coldwater.

Nescatunga; creek, a left-hand branch of Salt Fork Creek, in Comanche County. Coldwater.

Atlas sheets.

Ness; western county; organized in 1880; area, 1,080 square miles; population, 3,970; county seat, Ness; mean magnetic declination, $10^{\circ} 50'$; rainfall, 22 inches; temperature, 54° .

The surface is an undulating, treeless plain, ranging in elevation from 2,000 to 2,500 feet. Only a small portion of its area is under cultivation. It is traversed by branches of the Atchison, Topeka and Santa Fe and Missouri Pacific railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Bazine.....	120	455
Center.....	48	544
Ness.....		411
Eden.....	104	198
Franklin.....	144	433
Forrester.....	80	178
Highpoint.....	120	324
Johnson.....	120	163
Nevada.....	108	627
Ohio.....	116	406
Waring.....	120	643

Ness; city on Atchison, Topeka and Santa Fe Railway, in Center Township, and county seat of Ness County; magnetic declination, $11^{\circ} 05'$; population, 411; altitude, 2,260 feet... Ness.

Nester; creek, a left-hand branch of South Fork of Ninnescah River, in Kingman County..... Cheney.

Netawaka; city on Missouri Pacific Railway, in Netawaka Township, Jackson County; altitude, 1,146 feet; population, 266..... Hiawatha.

Netawaka; township in Jackson County; area, 36 square miles; population, 866..... Hiawatha.

Neuchatel; post village in Neuchatel Township, Nemaha County..... Seneca.

Neuchatel; township in Nemaha County; area, 36 square miles; population, 646..... Seneca.

Neutral; post village on Kansas City, Fort Scott and Memphis Railway, in Pleasant View Township, Cherokee County; altitude, 864 feet..... Joplin.

Nevada; township in Ness County; area, 108 square miles; population, 627..... Ellis.

Neville; post village in Sherman County.

New Albany; post village on St. Louis and San Francisco Railway, in Fall River Township, Wilson County; altitude, 892 feet..... Fredonia.

New Almelo; post village in Norton County.

Newark; township in Wilson County; area, 36 square miles; population, 773..... Independence.

New Basel; post village in Jefferson Township, Dickinson County..... Abilene.

New Bedford; hamlet in London Township, Sumner County.. Wellington.

Newbern; township in Dickinson County; area, 36 square miles; population, 594..... Abilene.

Newbury; village in Newbury Township, Wabaunsee County. Wamego.

Newbury; township in Wabaunsee County; area, 80 square miles; population, 1,375. Eskridge.

Atlas sheets.

- New Cambria**; post village and railway station in Cambria Township, Saline County; altitude, 1,198 feet..... Salina.
- New Chillicothe**; post village in Dickinson County.
- New Gottland**; township in McPherson County; area, 36 square miles; population, 613. { Salina.
Hutchinson.
- Newington**; post village in Johnson County.
- New Kiowa**; village on Atchison, Topeka and Santa Fe and Missouri Pacific railways, in Kiowa Township, Barber County Anthony.
- New Lancaster**; post village in Miami Township, Miami County Mound City.
- Newman**; post village on Union Pacific Railway, in Jefferson County; altitude, 857 feet.
- New Murdock**; post village in Kingman County.
- New Rochester**; station on Atchison, Topeka and Santa Fe Railway, in Rochester Township, Kingman County..... Anthony.
- New Salem**; post village and railway station in Richland Township, Cowley County; altitude, 1,239 feet..... Burden.
- New Tabor**; station on Chicago, Rock Island and Pacific Railway, in Fairview Township, Republic County Concordia.
- Newton**; city in Newton Township, and county seat of Harvey County; magnetic declination, 9° 50'; altitude, 1,447 feet. It is situated on the Missouri Pacific and the Atchison, Topeka and Santa Fe railways; population, 5,193..... Newton.
- Newton**; township in Harvey County; area, 36 square miles; population, 5,804 Newton.
- Niagara**; township in Stevens County; area, 81 square miles; population, 29.
- Nickel**; post village in Kiowa County.
- Nickerson**; city on Atchison, Topeka and Santa Fe and Missouri Pacific railways, in Grant Township, Reno County; altitude, 1,601 feet; population, 1,034..... Lyons.
- Nicodemus**; post village in Nicodemus Township, Graham County Hill.
- Nicodemus**; township in Graham County; area, 34 square miles; population, 313..... Hill.
- Nigger**; creek, a right-hand tributary to Arkansas River, in Cowley County Wellington.
- Niles**; post village and station on Union Pacific Railway, in Lincoln Township, Ottawa County; altitude, 1,188 feet.... Abilene.
- Ninemile**; creek, a right-hand branch of Big Stranger Creek, in Leavenworth and Jefferson counties; length, 21 miles..... Oskaaloosa.
- Ninemile**; creek, small branch of Missouri River, in Leavenworth County; length, 5 miles Kansas City.
- Ninnescah**; township in Cowley County; area, 36 square miles; population, 1,078..... Wellington.
- Ninnescah**; township in Kingman County; area, 66 square miles; population, 2,088..... Kingman.
- Ninnescah**; township in Reno County; area, 39 square miles; population, 314.
- Ninnescah**; township in Sedgwick County; area, 36 square miles; population, 731. { Cheney.
Wichita.
Wellington.
Caldwell.

	Atlas sheets.
Ninnescah ; river, a right-hand branch of Arkansas River, in Sumner, Sedgwick, and Kingman counties.	{ Wellington. Caldwell. Cheney.
Niota ; city on Missouri Pacific Railway, in Little Caney Township, Chautauqua County; altitude, 770 feet; population, 140	Sedan.
Nippawalla ; township in Barber County; area, 54 square miles; population, 255.	{ Medicine. Anthony.
Noble ; post village in Rice County.	
Noble ; township in Dickinson County; area, 34 square miles; population, 755.	{ Abilene. Parkerville. Clay Center. Junction City.
Noble ; township in Ellsworth County; area, 36 square miles; population, 470	Ellsworth.
Noble ; township in Marshall County; area, 48 square miles; population, 1,183	Seneca.
Noble ; township in Norton County; area, 36 square miles; population, 142	Norton.
Nohart ; creek, a small branch of Missouri River, in Brown County	Atchison.
Nonchalanta ; post village in Ness County.	
Nora ; post village in Pratt County.	
Norcatur ; city on Burlington and Missouri River Railway, in Lincoln Township, Decatur County; altitude, 2,628 feet; population, 171.	
Norfolk ; post village in Ellis County.	
North ; township in Labette County; area, 36 square miles; population, 8,939	Parsons.
North ; township in Wallace County; area, 81 square miles; population, 130.	
North ; township in Woodson County; area, 64 square miles; population, 445.	
Northampton ; township in Rooks County; area, 36 square miles; population, 376.	{ Plainville. Hill.
North Branch ; post village in Walnut Township, Jewell County	Mankato.
North Branch ; a fork of Otter Creek, in Greenwood County ..	Eureka.
North Branch ; a left-hand branch of Sharps Creek, in McPherson County	Hutchinson.
North Branch ; a left-hand branch of Fancy Creek, in Riley and Washington counties.	{ Marysville. Junction City.
North Branch ; a left-hand fork of Spillman Creek, in Lincoln County	Beloit.
North Cana ; creek, a left-hand branch of Middle Cana Creek, in Chautauqua County	Sedan.
North Cedar ; post village in Jefferson County.	
Northcott ; post village in Anderson County.	
Northfield ; post village in Cheyenne County.	
North Fork ; a branch of Little Arkansas River, in Rice County	Hutchinson.
North Fork ; a left-hand branch of Big Creek, in Ellis County.	Hays.
North Fork ; a left-hand branch of Ninnescah River, in Sedgwick, Kingman, Reno, and Stafford counties.	{ Cheney. Kingman. Pratt.

Atlas sheets.

- North Fork**; a branch of Walnut Creek, in Ness County..... Ness City.
- North Gypsum**; creek, a left-hand branch of Gypsum Creek, in McPherson County Salina.
- North Otter**; creek, a left-hand branch of Fancy Creek, in { Marysville.
Riley County. { Junction City.
- North Pole Mound**; a hill in Elm Creek Township, Saline County; altitude, 1,460 feet Salina.
- North Roscoe**; township in Hodgeman County; area, 108 square miles; population, 113.
- North Sugar**; creek, a left-hand branch of Big Sugar Creek, in Linn County..... Mound City.
- North Topeka**; post village on Atchison, Topeka and Santa Fe and Chicago, Rock Island and Pacific railways, in Shawnee County; altitude, 874 feet.
- North Walnut**; creek, a left-hand tributary to Grasshopper Creek, in Jefferson County..... Oskaaloosa.
- Norton**; city on Chicago, Rock Island and Pacific and Burlington and Missouri River railways, in Center Township; county seat of Norton County; altitude, 2,268 feet; population, 950..... Norton.
- Norton**; township in Jefferson County; area, 39 square miles; population, 1,391..... Oskaaloosa.
- Norton**; northwestern county; organized 1872; area, 900 square miles; population, 9,008; county seat, Norton; mean magnetic declination, 11°; rainfall, 22 inches; temperature, 52°. Norton.

The surface is a high, rolling, treeless plain, intersected by the valleys of Solomon River and Prairie Dog Creek. The elevation ranges from 2,200 to 2,600 feet. The climate is subhumid. The county is agricultural, but comparatively sparsely settled, and yet one-third of the land is cultivated, mainly in corn. The Burlington and Missouri River and Missouri Pacific railways cross it from east to west.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Aldine	36	399
Almelo	36	170
Almena	54	1,109
Almena		362
Belleplaine	36	202
Center	46	1,386
Norton		950
Crystal	36	376
Emmet	36	406
Garfield	36	402
Grant	54	588
Harrison	36	448
Highland	36	204
Lenora	36	360
Lenora		192
Leota	78	686
Lincoln	36	163
Modell	42	191
Noble	36	142
Orange	38	196
Rock Branch	36	387
Rockwell	36	334
Sand Creek	36	249
Solomon	36	309
West Union	48	303

Atlas sheets.

- Nortonville**; city on Atchison, Topeka and Santa Fe Railway, in Norton Township, Jefferson County; altitude, 4,160 feet; population, 668 Oskaloosa.
- Norway**; post village and station on St. Joseph and Grand Island Railway, in Norway Township, Republic County; altitude, 1,038 feet Concordia.
- Norway**; township in Republic County; area, 36 square miles; population, 683 Concordia.
- Norwich**; city on Missouri Pacific and Atchison, Topeka and Santa Fe railways, in Bennett Township, Kingman County; altitude, 1,490 feet; population, 282 Caldwell.
- Norwood**; post village and station on Atchison, Topeka and Santa Fe Railway, in Hays Township, Franklin County; altitude, 941 feet Lawrence.
- Numa**; post village in Butler County.
- Nuttycombe**; township in Cheyenne County; area, 60 square miles; population, 177.
- Nyra**; hamlet in Twin Mound Township, Rooks County Plainville.
- Oak**; township in Smith County; area, 36 square miles; population, 1,034 Smith Center.
- Oak**; creek, a right-hand branch of Republican River, in Cloud and Republic counties Concordia.
- Oak**; creek, a left-hand branch of Smoky Hill River, in Ellsworth County Ellsworth.
- Oak**; creek, a left-hand branch of North Fork Solomon River, in Mitchell, Osborne, and Smith counties. { Beloit.
Mankato.
Smith Center.
- Oak**; creek, a left-hand branch of Slate Creek, in Sumner County Wellington.
- Oakhill**; post village and station on Atchison, Topeka and Santa Fe Railway, in Oakland Township, Clay County; altitude, 1,259 feet Clay Center.
- Oakland**; township in Clay County; area, 36 square miles; population, 446 Clay Center.
- Oakland**; township in Cloud County; area, 36 square miles; population, 410. { Minneapolis.
Clay Center.
- Oakland**; post village in Shawnee County; altitude, 1,404 feet.
- Oakley**; city on Union Pacific Railway, in Oakley Township, Logan County; altitude, 3,049 feet; population, 203.
- Oakley**; township in Logan County; area, 108 square miles; population, 499.
- Oak Mills**; post village and station on Missouri Pacific Railway, in Atchison County; altitude, 781 feet Oskaloosa.
- Oakvale**; post village in Smith County.
- Oak Valley**; city on Atchison, Topeka and Santa Fe Railway, in Oak Valley Township, Elk County; population, 188; altitude, 861 feet Sedan.
- Oak Valley**; township in Elk County; area, 45 square miles; population, 751. { Sedan.
Independence.
- Oakwood**; post village in Linn County.
- Oanica**; post village in Kearny County.
- Oatville**; post village and station on Missouri Pacific Railway, in Waco Township, Sedgwick County; altitude, 1,291 feet.. Wichita.
- Oberlin**; city on Burlington and Missouri River Railway, in Oberlin Township, and county seat of Decatur County; altitude, 2,528 feet; population, 768.

Atlas sheets.

- Oberlin**; township in Decatur County; area, 36 square miles; population, 1,011.
- Ocheltree**; post village and station on Kansas City, Fort Scott and Memphis Railway, in Spring Township, Johnson County. Olathe.
- Odee**; post village in Odee Township, Meade County..... Meade.
- Odee**; township in Meade County; area, 36 square miles; population, 139 Meade.
- Odell**; township in Harper County; area, 36 square miles; population, 541..... Caldwell.
- Odense**; post village in Neosho County.
- Odessa**; township in Jewell County; area, 36 square miles; population, 440..... Mankato.
- Odin**; post village in Cheyenne Township, Barton County..... Russell.
- Offerle**; post village and station on Atchison, Topeka and Santa Fe Railway, in Trenton Township, Edwards County; altitude, 2,270 Spearville.
- Ogallah**; post village and station on Union Pacific Railway, in Ogallah Township, Trego County; altitude, 2,376 feet Ellis.
- Ogallah**; township in Trego County; area, 144 square miles; population, 430. { Hill.
Ellis.
- Ogallah**; creek, a left-hand branch of Big Creek, in Trego County. { Ellis.
Hill.
- Ogden**; city on Union Pacific Railway, in Ogden Township, Riley County; altitude, 1,050 feet; population, 167 Junction City.
- Ogden**; township in Riley County; area, 75 square miles; population, 854 Junction City.
- Ohio**; post village in Smith County.
- Ohio**; township in Franklin County; area, 43 square miles; population, 915. { Lawrence.
Garnett.
- Ohio**; township in Morris County; area, 36 square miles; population, 716 Parkerville.
- Ohio**; township in Ness County; area, 116 square miles; population, 405.
- Ohio**; township in Saline County; area, 36 square miles; population, 446 Salina.
- Ohio**; township in Sedgwick County; area, 36 square miles; population, 498. { Wichita.
Wellington.
- Ohio**; township in Stafford County; area, 36 square miles; population, 429.
- Oketirman**; a right-hand branch of Black Vermillion River, in Marshall County Seneca.
- Okaw**; post village in Kingman County.
- Oketo**; city on Union Pacific Railway, in Oketo Township, Marshall County; altitude, 1,164 feet; population, 322..... Marysville.
- Oketo**; township in Marshall County; area, 36 square miles; population, 1,008..... Marysville.
- Olathe**; city in Olathe Township, and county seat of Johnson County. It is entered by the Atchison, Topeka and Santa Fe, Kansas City, Fort Scott and Memphis, and the Kansas City, Clinton and Springfield railways; altitude, 1,032 feet. Olathe.
- Olathe**; township in Johnson County; area, 64 square miles; population, 4,489..... Olathe.
- Olcott**; post village and station on Missouri Pacific Railway, in Grove Township, Reno County Kingman.
- Old Maids Fork**; a right-hand branch of Walnut Creek, in Rush County Larned.

Atlas sheets.

- Oleson**; creek, a right-hand tributary to East Branch of Fall River, in Greenwood County Eureka.
- Olive**; township in Decatur County; area, 36 square miles; population, 245.
- Olivet**; post village in Olivet Township, Osage County; altitude, 1,139 feet Burlingame.
- Olivet**; township in Osage County; area, 62 square miles; population, 846. { Burlingame.
Burlington.
- Olmutz**; post village and station on Missouri Pacific Railway, in Walnut Township, Barton County; altitude, 1,999 feet Russell.
- Olpe**; post village and station on Atchison, Topeka and Santa Fe Railway, in Center Township, Lyon County Emporia.
- Olburg**; city on Union Pacific Railway, in Blue Valley Township, Pottawatomie County; population, 181 (1895); altitude, 1,429 feet Junction City.
- Omnia**; township in Cowley County; area, 36 square miles; population, 447 Burden.
- Onaga**; city on Union Pacific Railway, in Mill Creek Township, Pottawatomie County; altitude, 1,095 feet; population, 575. Wamego.
- One Hundred and Forty Mile**; creek, a left-hand branch of Hill Creek, and tributary to Marais des Cygnes Creek, in Lyon County. { Eskridge.
Burlingame.
- Oneida**; city on St. Joseph and Grand Island Railway, in Gilman Township, Nemaha County; population, 338 Hiawatha.
- One Mile**; creek, a small left-hand branch of Kansas River, in Riley County Junction City.
- Onion**; creek, a right-hand branch of Verdigris River, in Montgomery County Independence.
- Onion**; creek, a left-hand branch of Elm Creek, in Wabaunsee and Lyon counties Eskridge.
- Ontario**; post village in Jackson County.
- Opolis**; city on St. Louis and San Francisco Railway, in Baker Township, Crawford County; altitude, 917 feet; population, 217 Joplin.
- Orange**; post village in Sheridan County.
- Orange**; township in Lincoln County; area, 36 square miles; population, 462 Beloit.
- Orange**; township in Norton County; area, 38 square miles; population, 195 Norton.
- Orbitello**; post village in Lincoln County.
- Orchard**; post village in Linn County.
- Orlando**; township in Cheyenne County; area, 36 square miles; population, 100.
- Oronoque**; post village on Burlington and Missouri River Railway, in Norton County; altitude, 2,325 feet.
- Orr**; post village in Doniphan County.
- Orwell**; hamlet in Sterling Township, Hodgeman County Ness.
- Osage**; city on Atchison, Topeka and Santa Fe and Missouri Pacific railways, in Grant Township, Osage County; altitude, 1,081 feet; population, 3,451 Burlingame.
- Osage**; township in Allen County; area, 48 square miles; population, 965. { Iola.
Garnett.
- Osage**; township in Bourbon County; area, 48 square miles; population, 1,117. { Fort Scott.
Mound City.

Atlas sheets.

Osage; eastern county; organized, 1859; area, 720 square miles; population, 24,655; county seat, Lyndon; mean magnetic declination, $10^{\circ} 20'$; rainfall, 34 inches; temperature, 54° . } Burlington.
Burlingame.

The surface is a plain, somewhat eroded by streams, and treeless, except in stream valleys. The elevation ranges from 900 to 1,200 feet. It is an agricultural county, two-thirds of its area being under cultivation, mainly in corn. It is traversed by branches of the Atchison, Topeka and Santa Fe and the Union Pacific railways. This is the leading coal-producing county of Kansas, coal being mined at Carbondale, Scranton, Burlingame, Peterton, and Osage.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Agency	31	1,495
Quenemo		806
Arvonla	48	657
Barclay	48	788
Burlingame	72	3,051
Burlingame		1,536
Dragoon	36	710
Elk	54	1,767
Overbrook		333
Fairfax	45	754
Grant	40	4,368
Osage		3,451
Junction	48	1,253
Lincoln	30	718
Melvern	45	1,451
Melvern		442
Olivet	62	846
Ridgeway	42	1,554
Carbondale		722
Scranton	36	2,164
Scranton		1,240
Superior	32	1,319
Peterton		572
Valley Brook	43	1,760
Lyndon		929

Atlas sheets.

Osage; township in Crawford County; area, 61 square miles; population, 1,899. } Parsons.
Joplin.

Osage; township in Labette County; area, 64 square miles; population, 1,456. } Parsons.
Independence.

Osage; township in Miami County; area, 40 square miles; population, 1,042.

Osage Mission; city on Missouri, Kansas and Texas Railway, in Mission Township, Neosho County; altitude, 873 feet; population, 1,046. No post-office Iola.

Osage; river, a large right-hand branch of Missouri River, heading in the plains of eastern Kansas, and flowing in a very sinuous but generally easterly course to its mouth, in central Missouri. In its upper course in Kansas it is sometimes known as Marais des Cygnes River; length, 494 miles.

Osawatomie; city on Missouri Pacific Railway, in Osawatomie Township, Miami County; altitude, 853 feet; population, 2,755. } Mound City.
Olathe.

	Atlas sheets.
Osawatimie ; township in Miami County; area, 39 square miles; population, 3,734.	{ Mound City. Olathe. Lawrence. Garnett.
Osawatie ; township in Jefferson County; area, 42 square miles; population, 1,121	Oskaloosa.
Osborn ; township in Sumner County; area, 36 square miles; population, 485.	{ Caldwell. Wellington.
Osborne ; northern county; organized, 1871; area, 900 square miles; population, 10,984; county seat, Osborne; mean magnetic declination, 10° 10'; rainfall, 24 inches; temperature, 53°.	{ Phillipsburg. Smith Center. Plainville. Osborne.

The surface is a plain, much broken by erosion. The elevation ranges from 1,500 to 2,100 feet. The county is drained by the two forks of Solomon River, which flow across it from west to east. Nearly half its area is under cultivation, mainly in corn. It is traversed by a branch of the Missouri Pacific Railway.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Bethany	36	527
Portis		177
Bloom	54	553
Corinth	36	404
Covert	36	319
Delphi	54	582
Grant	36	370
Hancock	36	304
Hawkeye	36	393
Independence	36	272
Jackson	36	440
Kill Creek	36	315
Lawrence	36	347
Liberty	36	214
Mount Ayr	36	405
Natoma	36	238
Penn	54	1,456
Osborne		952
Ross	36	1,411
Downs		804
Round Mound	36	302
Sumner	54	756
Alton		253
Tilden	42	478
Valley	36	312
Victor	36	328
Winfield	36	259

Osborne ; city on Missouri Pacific Railway, in Penn Township; county seat of Osborne County; magnetic declination, 10° 40'; altitude, 1,557 feet; population, 952	Atlas sheets.
Oskaloosa ; city on Atchison, Topeka and Santa Fe Railway, in Oskaloosa Township, Jefferson County; altitude, 991 feet; population, 991	Osborne.
Oskaloosa ; township in Jefferson County; area, 72 square miles; population, 2,388	Oskaloosa.
Ost ; post village in Sumner Township, Reno County	Oskaloosa.
	Cheney.

Atlas sheets.

- Oswego**; city on Missouri, Kansas and Texas and St. Louis and San Francisco railways, in Oswego Township; county seat of Labette County; altitude, 894 feet; population, 2,492..... Parsons.
- Oswego**; township in Labette County; area, 30 square miles; population, 3,053..... Parsons.
- Otego**; city on Chicago, Rock Island and Pacific Railway, in Limestone Township, Jewell County; altitude, 1,788 feet; population, 71.
- Otis**; post village and station on Missouri Pacific Railway, in Pioneer Township, Rush County; altitude, 2,037 feet..... Hays.
- Otis**; creek, a branch of West Branch Fall River, in Greenwood County. { Eureka.
Emporia.
- Ottawa**; city in Ottawa Township, and county seat of Franklin County. It is situated on Marais des Cygnes River, and on the Atchison, Topeka and Santa Fe and the Missouri Pacific railways; altitude, 891 feet; population, 7,532..... Lawrence.
- Ottawa**; township in Franklin County; area, 48 square miles; population, 8,624..... Lawrence.
- Ottawa**; township in Ottawa County; area, 36 square miles; population, 276..... Clay Center.
- Ottawa**; creek, a left-hand branch of Osage River, in Franklin County (East and West Forks, in Franklin and Douglas counties)..... Lawrence.
- Ottawa**; central county; organized, 1866; area, 720 square miles; population, 10,342; county seat, Minneapolis; mean magnetic declination, 9° 40'; rainfall, 27 inches; temperature, 53°. { Minneapolis.
Clay Center.
Salina.
Abilene.

The surface is varied. Through the county from northwest to southeast flows Solomon River in a broad, level valley, from which broken hills rise on each side. The country is treeless. The elevation ranges from 1,200 to 1,600 feet. Nearly three-fifths of the area of the county is under cultivation, mainly in corn. It is traversed by branches of the Union Pacific and the Atchison, Topeka and Santa Fe railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Bennington	36	775
Bennington		344
Blaine	36	388
Buckeye	36	357
Center	36	323
Chapman	36	352
Concord	36	1,875
Minneapolis		1,472
Culver	36	544
Durham	36	166
Fountain	36	620
Garfield	36	421
Grant	36	283
Henry	36	292
Lincoln	36	388
Logan	36	501
Morton	36	222
Ottawa	36	276
Richland	36	315
Sheridan	36	923
Delphose		475
Sherman	36	419
Stanton	36	470

Atlas sheets.

Otter ; township in Cowley County; area, 48 square miles; population, 409.....	Burden.
Otterbourne ; post village in Thomas County.	
Otter ; creek, a small right-hand branch of Neosho River, in Coffey County	Burlington.
Otter ; creek, a right-hand branch of Big Cana Creek, in Cowley and Chautauqua counties.	{ Burden. Sedan.
Otter ; creek, a right-hand branch of Lyons Creek, in Davis County	Parkerville.
Otter ; creek, a right-hand branch of Fall River, in Greenwood County	Eureka.
Otter ; creek, a left-hand branch of Republican River, in Republican County	Concordia.
Otter ; creek, a right-hand branch of Fancy Creek, in Riley County	Junction City.
Otter ; creek, a right-hand branch of Walnut Creek, in Rush County	Larned.
Otter Creek ; township in Greenwood County; area, 113 square miles; population, 1,030.	{ Emporia. Eldorado.
Otto ; post village in Cowley County.	
Ottumwa ; post village in Ottumwa Township, Cowley County.	Burlington.
Ottumwa ; township in Coffey County; area, 53 square miles; population, 1,108.....	Burlington.
Overbrook ; city in Elk Township, Osage County; population, 333.	
Owl ; creek, a right-hand branch of Neosho river, in Allen and Woodson counties.	{ Iola. Fredonia.
Owl ; creek, a small tributary to Big Walnut Creek, in Crawford County	Iola.
Owl ; creek, a left-hand branch of Little Osage River, in Linn and Bourbon counties	Mound City.
Owl ; creek, a right-hand branch of Saline River, in Lincoln County.	{ Ellsworth. Beloit.
Owl Creek ; township in Woodson County; area, 48 square miles; population, 758	Fredonia.
Oxford ; city on Atchison, Topeka and Santa Fe and Missouri Pacific railways, in Oxford Township, Sumner County; altitude, 7,163 feet; population, 463	Wellington.
Oxford ; township in Johnson County; area, 70 square miles; population, 1,386	Olathe.
Oxford ; township in Sumner County; area, 36 square miles; population, 1,001.....	Wellington.
Oxide ; creek, a right-hand branch of Smoky Hill River, in Ellsworth County.....	Ellsworth.
Ozark ; township in Anderson county; area, 39 square miles; population, 1,099.....	Garnett.
Ozawkie ; post village on Atchison, Topeka and Santa Fe Railway, in Ozawkie Township, Jefferson County; altitude, 878 feet	Oskaloosa.
Padonia ; post village and station on Missouri Pacific Railway, in Padonia Township, Brown County; altitude, 933 feet....	Hiawatha.
Padonia ; township in Brown County; area, 42 square miles; population, 936.	{ Atchison. Hiawatha.
Page ; post village in Logan County, on Union Pacific Railroad; altitude, 3,237 feet.	
Page ; creek, a right-hand branch of Smoky Hill River, in Trego County.....	Ellis.

	Atlas sheets.
Paint ; creek, a right-hand branch of Smoky Hill River, in McPherson County.	{ Hutchinson. Salina.
Painter ; creek, a right-hand branch of South Fork of Ninnecah River, in Kingman and Pratt counties.	{ Kingman. Pratt.
Painterhood ; township in Elk County; area, 60 square miles; population, 540.	{ Sedan. Eureka. Independence. Fredonia.
Painterhood ; creek, a left-hand tributary to Elk River, in Elk County	Sedan.
Palacky ; post village in Ellsworth County.	
Palacky ; township in Ellsworth County; area, 36 square miles; population, 420	Ellsworth.
Palatine ; post village in Smoky Hill Township, Ellis County	Hays.
Palco ; post village and station on Union Pacific Railway, in Northampton Township, Rooks County; altitude, 2,282 feet.	Hill.
Palestine ; township in Sumner County; area, 30 square miles; population, 537	Wellington.
Palermo ; post village in Doniphan County.	
Palmer ; city on Missouri Pacific Railway, in Sherman Township, Washington County; altitude, 1,325 feet; population, 200	Washington.
Palmyra ; post village in Butler County.	
Palmyra ; township in Douglas County; area, 82 square miles; population, 2,944	Lawrence.
Panther ; creek, a left-hand branch of Grouse Creek, in Cowley County	Burden.
Paola ; city on Missouri Pacific and Kansas City, Fort Scott and Memphis railways, in Paola Township, and county seat of Miami County; altitude, 856 feet; population, 3,147	Olathe.
Paola ; township in Miami County; area, 32 square miles; population, 3,876	Olathe.
Paradise ; post village and station on Union Pacific Railway, in Paradise Township, Russell County	Osborne.
Paradise ; township in Rooks County; area, 72 square miles; population, 397	Plainville.
Paradise ; township in Russell County; area, 144 square miles; population, 525.	{ Osborne. Russell.
Paradise ; creek, left-hand branch of Saline River, in Russell, Osborne, and Rooks counties.	{ Russell. Osborne. Plainville.
Parallel ; post village in Washington County.	
Pardee ; post village in Atchison County	Oskaloosa.
Paris ; post village in Battle Creek Township, Lincoln County.	Beloit.
Paris ; township in Linn County; area, 65 square miles; population, 1,373	Mound City.
Park ; post village in Gove County.	
Park ; township in Sedgwick County; area, 36 square miles; population, 813	Wichita.
Parker ; post village and railway station in Linn County; altitude, 1,009 feet.	
Parker ; township in Montgomery County; area, 34 square miles; population, 4,883	Independence.
Parker ; township in Morris County; area, 61 square miles; population, 813	Parkerville.

Atlas sheets.

- Parker**; creek, a small left-hand branch of Neosho River, in Morris County **Parkerville.**
- Parkerville**; city on Missouri, Kansas and Texas Railway, in Parker Township, Morris County; altitude, 1,333 feet; population, 161 **Parkerville.**
- Parnell**; post village and station on Missouri Pacific and Atchison, Topeka and Santa Fe railways, in Atchison County; altitude, 1,041 feet **Atchison.**
- Parnell**; township in Sheridan County; area, 72 square miles; population, 267.
- Parsons**; city in North Township, Labette County; magnetic declination, 8° 20'. It is an important railroad center, being entered by the Missouri, Kansas and Texas and the Kansas City, Fort Scott and Memphis railways; altitude, 898 feet; population, 8,115 **Parsons.**
- Parsons**; creek, a left-hand branch of Gar Creek, in Washington County **Washington.**
- Partridge**; post village and station on the Atchison, Topeka and Santa Fe and the Chicago, Rock Island and Pacific railways, in Center Township, Reno County; altitude, 1,612 feet **Kingman.**
- Passaic**; post village in Kearney County.
- Pat**; creek, a right-hand branch of South Fork of Neosho River, in Kingman County **Kingman.**
- Patmos**; post village in Coffey County.
- Patterson**; post village and station on St. Louis and San Francisco Railway, in Lake Township, Harvey County; altitude, 1,434 feet **Cheney.**
- Patterson**; lake, a small lake in Lake Township, Harvey County **Cheney.**
- Patterson**; station on Atchison, Topeka and Santa Fe Railway, in Elm Creek Township, Morris County **Parkerville.**
- Pauline**; post village and station on Atchison, Topeka and Santa Fe Railway, in Williamsport Township, Shawnee County; altitude, 1,033 feet **Burlingame.**
- Pavilion**; post village and station on Atchison, Topeka and Santa Fe Railway, in Wabaunsee Township, Wabaunsee County; altitude, 1,098 feet **Wamego.**
- Pawnee**; post village and station on Kansas City, Fort Scott and Gulf Railway, in Pawnee Township, Bourbon County; altitude, 990 feet **Fort Scott.**
- Pawnee**; township in Bourbon County; area, 48 square miles; population, 1,097 **Fort Scott.**
- Pawnee**; township in Pawnee County; area, 72 square miles; population, 247 **Larned.**
- Pawnee**; township in Smith County; area, 36 square miles; population, 405 **Smith Center.**
- Pawnee**; central county; organized, 1872; area, 756 square miles; population, 4,441; county seat, Larned; mean magnetic declination, 10° 30'; rainfall, 24 inches; temperature, 54°.

The surface is a treeless plain. South of Arkansas River, which crosses the county from southwest to northeast, the country is sandy. The elevation ranges from 2,000 to 2,300 feet. Of its area four-tenths are under cultivation, mainly in wheat. The county is traversed by branches of the Atchison, Topeka and Santa Fe and the Missouri Pacific railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Ash Valley	36	166
Browns Grove	72	251
Conkling	36	51
Garfield	81	404
Grant	72	170
Keyaville	69	170
Larned	61	1,789
Larned		1,374
Logan	36	177
Pawnee	72	247
Pleasant Ridge	45	172
Pleasant Valley	101	370
River	36	278
Walnut	36	196

- Pawnee**; creek, a right-hand tributary to Marmaton River, in Atlas sheets.
Bourbon County Fort Scott.
- Pawnee**; creek, a right-hand branch of Smoky Hill River, in
Saline and McPherson counties Salina.
- Pawnee**; river, a left-hand branch of Arkansas River, in Ness City.
Hodgeman and Pawnee counties. { Larned.
- Pawnee Fork**; a north branch of Pawnee River, in Hodgeman
and Ness counties Ness City.
- Pawnee Rock**; city on Atchison, Topeka and Santa Fe Rail-
way, in Pawnee Rock Township, Barton County; popula-
tion, 129 Great Bend.
- Pawnee Rock**; township in Barton County; area, 36 square { Great Bend.
miles; population, 557. { Larned.
- Pawpaw**; township in Elk County; area, 54 square miles;
population, 882 Eureka.
- Pawpaw**; creek, a left-hand branch of Elk River, in Elk { Sedau.
County. { Eureka.
- Pawpaw**; creek, a left-hand branch of Mill Creek, in Wabaun-
see County Wamego.
- Paxico**; post village and station on Chicago, Rock Island and
Pacific Railway, in Newbury Township, Wabaunsee County
altitude, 996 feet Wamego.
- Paxson**; township in Pratt County; area, 36 square miles; { Pratt.
population, 299. { Medicine Lodge.
- Paxton**; township in Logan County; area, 72 square miles;
population, 141.
- Payne**; township in Gove County; area, 126 square miles;
population, 255.
- Payne**; township in Sedgwick County; area, 36 square miles;
population, 631 Wichita.
- Peabody**; city on Chicago, Rock Island and Pacific and Atchi-
son, Topeka and Santa Fe railways, in Peabody Township,
Marion County; altitude, 1,358 feet; population, 1,656 Newton.
- Peabody**; township in Marion County; area, 36 square miles;
population, 2,154 Newton.
- Peace**; creek, a right-hand branch of Arkansas River, in Reno
and Rice counties Lyons.

Atlas sheets.

- Peacecreek**; post village in Reno County.
- Pearl**; post village in Dickinson County.
- Peck**; post village on Chicago, Rock Island and Pacific Railway, in Sedgwick County; altitude, 1,270 feet.
- Peet**; creek, a left-hand branch of Republican River, in Clay and Washington counties Washington.
- Penalosa**; post village and station on Missouri Pacific Railway, in Eureka Township, Kingman County; altitude, 1,730 feet. Kingman.
- Pence**; post village in Scott County.
- Pendennis**; post village on Missouri Pacific Railway, in Lane County; altitude, 2,720 feet.
- Pendleton**; post village in Miami Township, Miami County... Olathe.
- Penfield**; station on Atchison, Topeka and Santa Fe Railway, in Olivet Township, Osage County..... Burlington.
- Penn**; township in Osborne County; area, 54 square miles; population, 1,456..... Osborne.
- Pentheka**; post village in Rawlins County.
- Peoria**; post village in Peoria Township, Franklin County.... Lawrence.
- Peoria**; township in Franklin County; area, 36 square miles; population, 982..... Lawrence.
- Peotone**; post village in Viola Township, Sedgwick County... Cheney.
- Perry**; city on Union Pacific and Kansas City, Fort Scott and Memphis railways, in Kentucky Township, Jefferson County; altitude, 791 feet; population, 441..... Oskaloosa.
- Perry**; township in Woodson County; area, 36 square miles; population, 505 Fredonia.
- Perry**; creek, a right-hand branch of Cottonwood River, in Marion County. { Newton.
Abilene.
- Persimmon**; creek, a left-hand branch of Sycamore Creek, in Montgomery County Independence.
- Perth**; post village and station on Atchison, Topeka and Santa Fe and Chicago, Rock Island and Pacific railways, in Downs Township, Sumner County; altitude, 1,210 feet..... Caldwell.
- Peru**; post village and station on Atchison, Topeka and Santa Fe and Missouri Pacific railways, in Belleville Township, Chautanqua County; altitude, 805 feet Sedan.
- Peters**; township in Kingman County; area, 36 square miles; population, 163. { Kingman.
Anthony.
- Peters**; creek, a left-hand branch of Allen Creek, in Kingman County Kingman.
- Peterton**; city on Atchison, Topeka and Santa Fe Railway, in Superior Township, Osage County; altitude, 1,071 feet; population, 572 Burlingame.
- Petyt**; creek, a right-hand branch of South Fork of Ninnescah River, in Kingman County Kingman.
- Peyton**; creek, a left-hand branch of Cottonwood River, in Chase County..... Emporia.
- Pfeifer**; post village in Freedom Township, Ellis County Hays.
- Phelps**; post village in Sheridan County.
- Phenis**; creek, a right-hand branch of Cottonwood River, in Lyon County Emporia.

Atlas sheets.

Phillips; northern county; organized, 1872; area, 900 square miles; population, 11,711; county seat, Phillipsburg; mean magnetic declination, $11^{\circ} 10'$; rainfall, 23 inches; temperature, 52° .

Norton.
Phillipsburg.

The surface is a high, rolling, treeless plain, intersected by the valleys of Solomon River and Prairie Dog Creek. The elevation ranges from 1,700 to 2,200 feet. The county is agricultural, 400 square miles of its area being under cultivation, mainly in corn. It is traversed by the Burlington and Missouri River and the Missouri Pacific railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Arcade	36	442
Beaver	36	395
Belmont	36	362
Bowcreek	36	311
Crystal	36	414
Dayton	36	456
Deer Creek	36	445
Freedom	36	382
Glenwood	36	291
Granite	36	486
Greenwood	36	303
Kirwin	36	822
Kirwin		448
Logan	30	618
Logan		362
Long Island	48	895
Mound	36	499
Phillipsburg	36	1,256
Phillipsburg		855
Plainview	36	190
Plum	36	638
Prairieview	36	620
Rushville	36	254
Solomon	36	452
Sumner	36	428
Towanda	30	206
Valley	36	266
Walnut	36	280

Phillipsburg; city on Chicago, Rock Island and Pacific Railway, in Phillipsburg Township, and county seat of Phillips County; magnetic declination, $10^{\circ} 40'$; altitude, 1,935 feet; population, 855. Phillipsburg.

Phillipsburg; township in Phillips County; area, 36 square miles; population, 1,256 Phillipsburg.

Pierce; creek, a left-hand branch of Kinsley Creek, in Wabaunsee County. Wamego.

Pierce Junction; post village in Brown County.

Pierceville; post village and station on Atchison, Topeka and Santa Fe Railway, in Pierceville Township, Finney County; altitude, 2,759 feet. Garden.

Pierceville; township in Finney County; area, 144 square miles; population, 111 Garden.

Pig; creek, a small right-hand tributary to Verdigris River, in Wilson County Fredonia.

Atlas sheets.

- Pike**; township in Lyon County; area, 54 square miles; population, 1,014..... Emporia.
- Pilot Knob**; township in Harper County; area, 36 square miles; population, 442. { Anthony.
Caldwell.
- Pioneer**; township in Graham County; area, 63 square miles; population, 318.
- Pioneer**; township in Rice County; area, 36 square miles; population, 471..... Lyons.
- Pioneer**; township in Rush County; area, 42 square miles; population, 539. { Hays.
Larned.
- Pipe**; creek, a left-hand branch of Solomon River, in Ottawa County Minneapolis.
- Pipecreek**; post village in Ottawa County.
- Piper**; post village and station on Wichita and Northwestern Railway, in Prairie Township, Wyandotte County; altitude, 972 feet..... Kansas City.
- Piqua**; post village on Missouri, Kansas and Texas, and St. Louis, Fort Scott and Wichita railways, in Neosho Falls Township, Woodson County; altitude, 1,038 feet..... Fredonia.
- Pittsburg**; city on Kansas City, Fort Scott and Memphis, and St. Louis and San Francisco railways, in Baker Township, Crawford County; altitude, 934 feet; population, 10,172.... Joplin.
- Pittsburg**; township in Mitchell County; area, 36 square miles; population, 501..... Beloit.
- Pixley**; post village in Barber County.
- Plainview**; township in Phillips County; area, 36 square miles; population, 190. { Phillipsburg.
Norton.
- Plainville**; city on Union Pacific Railway, in Plainville Township, Rooks County; altitude, 2,156 feet; population, 272... Plainville.
- Plainville**; township in Rooks County; area, 72 square miles; population, 835..... Plainville.
- Pleasant**; township in Butler County; area, 36 square miles; population, 528..... Wichita.
- Pleasant**; township in Coffey County; area, 68 square miles; population, 1,196..... Burlington.
- Pleasant**; township in Harvey County; area, 36 square miles; population, 647 Newton.
- Pleasant**; township in Lincoln County; area, 36 square miles; population, 606. { Beloit.
Ellsworth.
- Pleasant**; township in Smith County; area, 36 square miles; population, 512..... Smith Center.
- Pleasantdale**; township in Rush County; area, 48 square miles; population, 281..... Hays.
- Pleasant Green**; post village in Phillips County.
- Pleasant Grove**; post village in Douglas County.
- Pleasant Grove**; township in Greenwood County; area 59 square miles; population, 561. { Emporia.
Fredonia.
- Pleasant Hill**; township in Ellis County; area, 62 square miles; population, 223.
- Pleasanton**; city on Kansas City, Fort Scott and Memphis Railway, in Potosi Township, Linn County; population, 1,060; altitude, 862 feet Mound City.
- Pleasant Ridge**; township in Pawnee County; area, 45 square miles; population, 172 Larned.
- Pleasant Valley**; township in Cowley County; area, 44 square miles; population, 823. { Burden.
Wellington.

Atlas sheets.

Pleasant Valley; township in Decatur County; area, 36 square miles; population, 189.	
Pleasant Valley; township in Finney County; area, 72 square miles; population, 115.	
Pleasant Valley; township in Ford County; area, 72 square miles; population, 146.	Spearville.
Pleasant Valley; township in Pawnee County; area, 101 square miles; population, 370.	Larned.
Pleasant Valley; township in Saline County; area, 36 square miles; population, 381.	Salina.
Pleasant Valley; township in Wilson County; area, 48 square miles; population, 845.	Fredonia.
Pleasant View; township in Cherokee County; area, 45 square miles; population, 1,063.	Joplin.
Pleasant View; post village in Pleasant View Township, Cherokee County.	Joplin.
Plevna; post village and station on Atchison, Topeka and Santa Fe Railway, in Plevna Township, Reno County; altitude, 1,693 feet.	Kingman.
Plevna; township in Reno County; area, 36 square miles; population, 388.	Kingman.
Plotner; creek, a left-hand branch of Deer Creek, in Phillips County.	Phillipsburg.
Plum; township in Phillips County; area, 36 square miles; population, 638.	Phillipsburg.
Plum; creek, a left-hand branch of Grouse Creek, in Cowley County.	Burden.
Plum; creek, a left-hand tributary to Silver Creek, in Cowley County.	Burden.
Plum; creek, a left-hand branch of Cow Creek, in Ellsworth and Rice counties.	{ Ellsworth. Lyons.
Plum; creek, a left-hand branch of Sandy Creek, in Harper County.	Anthony.
Plum; creek, a small branch of Missouri River, in Leavenworth County; length, 5 miles.	{ Oskaloosa. Kansas City.
Plum; creek, a small left-hand branch of Osage River, in Miami County.	Olathe.
Plum; creek, a left-hand branch of Solomon River, in Mitchell and Jewell counties.	{ Beloit. Mankato.
Plum; creek, a right-hand branch of Dragoon Creek, in Osage County.	Burlingame.
Plum; creek, a right-hand branch of Cedar Creek, in Phillips and Smith counties.	Phillipsburg.
Plum; creek, a right-hand tributary to Fall River, in Wilson County.	{ Independence. Fredonia.
Plumb; township in Wabaunsee County; square miles; population, 1,001.	
Plumb; creek, a left-hand branch of Neosho River, in Lyon County.	Emporia.
Plumb; creek, a left-hand branch of Osage River, in Osage County.	Burlingame.
Plumer; creek, a left-hand branch of Hundred and ten Mile Creek, in Osage County.	Burlingame.
Plum Creek; township in Mitchell County; area, 36 square miles; population, 468.	{ Beloit. Mankato.

- Atlas sheets.
- Plum Grove**; township in Butler County; area, 36 square miles; population, 508. { Eldorado.
Wichita.
- Plymell**; post village in Ivanhoe Township, Finney County... Garden.
- Plymouth**; post village and station on Atchison, Topeka and Santa Fe Railway, in Pike Township, Lyon County; altitude, 1,144 feet..... Emporia.
- Plymouth**; township in Russell County; area, 108 square miles; population, 1,028. { Russell.
Ellsworth.
- Poe**; post village in Logan County.
- Point View**; post village in Pawnee County.
- Pole Cat**; creek, a right-hand branch of Walnut River, in Cowley and Butler counties. { Wellington.
Wichita.
- Polecat**; creek, a branch of Clearwater Creek, in Sedgwick County..... Cheney.
- Pollard**; post village in Rice County; altitude, 1,731 feet.
- Pomeroy**; post village and station on Missouri Pacific Railway in Quindaro Township, Wyandotte County; altitude, 755 feet..... Kansas City.
- Pomona**; city on Atchison, Topeka and Santa Fe, and Missouri Pacific railways, in Pomona Township, Franklin County; altitude, 923 feet; population, 561..... Lawrence.
- Pomona**; township in Franklin County; area, 21 square miles; population, 984. { Lawrence.
Burlingame.
- Pontiac**; post village and railway station on Missouri Pacific Railway, in Prospect Township, Butler County; altitude, 1,428 feet..... Eldorado.
- Pony**; creek, a right-hand branch of Big Walnut Creek, in Crawford County..... Iola.
- Pony**; creek, a right-hand tributary to Missouri River.
- Pool**; creek, a right-hand branch of Middle Cana Creek, in Chautauqua County..... Sedan.
- Porcupine**; creek, a right-hand branch of West Limestone Creek, in Jewell County..... Mankato.
- Porter**; township in Cheyenne County; area, 108 square miles; population, 209.
- Porterville**; post village in Bourbon County.
- Portis**; city on Missouri Pacific Railway, in Bethany Township, Osborne County; altitude, 1,541 feet; population, 127..... Smith Center.
- Portland**; post village in Sumner County; altitude, 1,179 feet.
- Post**; creek, a small, right-hand branch of Kansas River, in Shawnee County..... Topeka.
- Potato**; creek, a left-hand tributary to Verdigris River, in Montgomery County..... Independence.
- Potosi**; township in Linn County; area, 56 square miles; population, 2,614..... Mound City.
- Pottawatomie**; northeastern county; organized, 1856; area, 848 square miles; population, 16,966; county seat, Westmoreland; mean magnetic declination, 9° 35'; rainfall, 30 inches; temperature, 53°. { Maryville.
Junction City.
Seneca.
Wamego.
- The surface is a rolling plain, treeless except in the stream valleys. The elevation ranges from 950 to 1,500 feet. The county is drained by Big Blue River, which limits it on the west, Kansas River, which forms the southern boundary, and Vermilion River. Of its area more than one-half is cultivated, mainly in corn. It is traversed by branches of the Union Pacific Railway. Coal is mined at St. Mary.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Belvue	39	749
Blue	45	643
Blue Valley	46	811
Olsburg		(1895) 181
Center	30	435
Clear Creek	39	649
Emmet	34	324
Grant	30	803
Havensville		346
Green	48	567
Lincoln	30	403
Lone Tree	33	501
Louisville	37	907
Louisville		312
Mill Creek	42	1,184
Onaga		575
Pottawatomie	60	841
Rock Creek	36	855
Westmoreland		445
Shannon	32	542
Sherman	36	506
Spring Creek	40	390
St. Clare	30	356
St. George	33	500
St. Mary	37	1,944
St. Mary		1,291
Union	36	517
Vienna	30	317
Wamego	16	2,222
Wamego		1,808

- Pottawatomie**; post village in Coffey County. Atlas sheets.
- Pottawatomie**; township in Coffey County; area, 54 square miles; population, 832. Burlington.
- Pottawatomie**; township in Franklin County; area, 39 square miles; population, 979. Garnett.
- Pottawatomie**; township in Pottawatomie County; area, 60 square miles; population, 841. Wamego.
Junction City.
- Pottawatomie**; creek, a large left-hand branch of Marais des Cygnes River, in Coffey, Anderson, and Miami counties. Burlington.
Garnett.
Mound City.
- Pottawatomie**; reserve, located in Jackson County; area, 121 square miles; population, 1,000 (estimated). Topeka.
- Potter**; post village in Atchison County; altitude, 930 feet.
- Pottersburg**; post village in Lincoln County.
- Potterville**; post village in Winfield Township, Osborne County. Osborne.
- Potwin**; post village and station on Missouri Pacific Railway, in Plum Grove Township, Butler County; altitude, 1,338 feet. Wichita.
- Powell**; post village in Phillips County.
- Powell**; township in Comanche County; area, 72 square miles; population, 139. Coldwater.
- Powhatan**; post village and station on Chicago, Rock Island and Pacific Railway, in Powhatan Township, Brown County; altitude, 1,210 feet. Hiawatha.
- Powhatan**; township in Brown County; area, 90 square miles; population, 1,471. Hiawatha.
- Prairie**; township in Jewell County; area, 36 square miles; population, 745. Mankato.

Atlas sheets.

- Prairie**; township in Wilson County; area, 30 square miles; population, 420 Fredonia.
- Prairie**; township in Wyandotte County; area, 29 square miles; population, 1,025 Kansas City.
- Prairie**; creek, a small right-hand tributary to Big Stranger Creek, in Jefferson County Oskaloosa.
- Prairie**; creek, a left-hand branch of Chikaskia River, in Sumner County Caldwell.
- Prairie Center**; post village in Johnson County.
- Prairie Dog**; township in Decatur County; area, 36 square miles; population, 195.
- Prairie Dog**; township in Sheridan County; area, 36 square miles; population, 157.
- Prairie Dog**; creek, a branch of Republican River, heading in northwestern Kansas, and flowing northeastward to its junction with Republican River, in southern Kansas. It flows through Phillips, Norton, Decatur, Sheridan, and Thomas counties. } Norton.
Phillipsburg.
- Prairie View**; post village and station on Chicago, Rock Island and Pacific Railway, in Prairie View Township, Phillips County; altitude, 2,172 feet Norton.
- Prairie View**; township in Phillips County; area, 36 square miles; population, 620 Norton.
- Pratt**; city on the Chicago, Rock Island and Pacific and the Wichita and Western railways, in Center Township, and county seat of Pratt County; magnetic declination, 10° 05'; altitude, 1,885 feet; population, 1,212 Pratt.
- Pratt**; southern county; organized, 1879; area, 720 square miles; population, 6,126; county seat, Pratt; mean magnetic declination, 10° 05'; rainfall, 25 inches; temperature, 55°. } Pratt.
Kinsley.
Coldwater.
Medicine Lodge.

The surface is a rolling, treeless plain, the northwestern part occupied by sand hills. The elevation ranges from 1,700 to 2,100 feet. More than four-tenths of its area is under cultivation, mainly in wheat and corn. It is traversed by branches of the Missouri Pacific, the Chicago, Rock Island and Pacific, and the Atchison, Topeka and Santa Fe railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Banner.....	36	228
Carmi.....	36	331
Center.....	39	1,442
Pratt.....		1,212
Elm.....	36	269
Gove.....	36	139
Grant.....	36	354
Haynesville.....	63	659
Inka.....	71	573
Logan.....	36	191
McClellan.....	66	154
McPherson.....	36	278
Naron.....	68	411
Paxon.....	96	299
Richland.....	37	273
Saratoga.....	9	136
Springvale.....	36	151
Valley.....	45	238

Prattsburg; post village in Stafford County.

Prescott; city on Kansas City, Fort Scott and Memphis Railway, in Sheridan Township, Linn County; population, 241 (1890); altitude, 889 feet.

Prealey; post village in Sherman County.

Preston; post village and station on the Missouri Pacific and the Chicago, Rock Island and Pacific railways, in Haynesville Township, Pratt County; altitude, 1,841 feet **Pratt.**

Pretty; creek, a left-hand branch of Mill Creek, in Wabaunsee County..... **Wamego.**

Pretty Prairie; post village in Reno County.

Price; post village in Nemaha County.

Princeton; post village and station on Atchison, Topeka and Santa Fe Railway, in Ohio Township, Franklin County; altitude, 967 feet **Garnett.**

Prior; creek, a left-hand branch of Verdigris River, in Montgomery County **Independence.**

Prospect; township in Butler County; area, 87 square miles; population, 662 **Eldorado.**

Prosser; creek, a right-hand branch of Rattlesnake Creek, and tributary to Salt Creek, in Lincoln County **Beloit.**

Protection; post village and station on Atchison, Topeka and Santa Fe Railway, in Protection Township, Comanche County; altitude, 1,846 feet **Coldwater.**

Protection; township in Comanche County; area, 72 square miles; population, 212. { **Coldwater.**
 { **Clark.**

Providence; post village in Butler County.

Pumpkin; creek, a left-hand branch of Verdigris River, in Montgomery and Labette counties **Independence.**

Pumpkin; creek, a left-hand tributary to Big Cedar Creek, in Wilson County **Fredonia.**

Purcell; post village on Chicago, Rock Island and Pacific Railway, in Doniphan County; altitude, 1,157 feet.

Putnam; post village in Harvey County.

Putnam; township in Anderson County; area, 33 square miles; population, 575 **Garnett.**

Putnam; township in Stafford County; area, 72 square miles; population, 268. { **Great Bend.**
 { **Lyons.**

Quarry; post village in Marion County.

Quenemo; city on Atchison, Topeka and Santa Fe Railway, in Agency Township, Osage County; population, 806; altitude, 941 feet..... **Burlingame.**

Quickville; post village in Thomas County.

Quincy; post village in Greenwood County.

Quincy; township in Greenwood County; area, 60 square miles; population, 902. { **Eureka.**
 { **Fredonia.**

Quindaro; post village and station on Kansas City, Wichita and Northwestern Railway, in Wyandotte County; altitude, 890 feet.

Quindaro; township in Wyandotte County; area, 25 square miles; population, 1,796 **Kansas City.**

Quinter; post village in Gove County, on Union Pacific Railway; altitude, 2,664 feet.

Rabbit; creek, a small branch of South Wea Creek, in Miami County **Olathe.**

	Atlas sheets.
Racket ; creek, a left-hand tributary to Elk River, in Montgomery County	Independence.
Radical ; a village in Sycamore Township, Montgomery County.	Independence.
Raemer ; creek, a right-hand branch of Horseshoe Creek, in Marshall County	Marysville.
Rago ; post village and station on Atchison, Topeka and Santa Fe Railway, in Valley Township, Kingman County; altitude, 1,450 feet.....	Anthony.
Rainbow ; creek, a right-hand tributary to Fall River, in Wilson County.	{ Independence. Fredonia.
Ralls ; creek, a right-hand branch of Clarks Creek, in Morris County	Parkerville.
Ramapo ; station on Missouri Pacific Railway, in Quindaro Township, Wyandotte County; altitude, 746 feet	Kansas City.
Ramona ; post village on Chicago, Rock Island and Pacific Railway, in Marion County; altitude, 1,436 feet.	
Ramsey ; creek, a small left-hand branch of Neosho River, in Morris County	Parkerville.
Randall ; city on Missouri Pacific Railway, in Prairie Township, Jewell County; altitude, 1,448 feet; population, 177	Mankato.
Randall ; township in Thomas County; area, 216 square miles; population, 658.	
Randolph ; city on Union Pacific Railway, in Jackson Township, Riley County; altitude, 1,052 feet; population, 376...	Junction City.
Ransom ; post village and station on Missouri Pacific Railway, in Nevada Township, Ness County; altitude, 2,516 feet	Ellis.
Ransomville ; post village and station on Atchison, Topeka and Santa Fe Railway, in Williamsburg Township, Franklin County; altitude, 1,138 feet.....	Lawrence.
Rantoul ; post village and station on Missouri Pacific Railway, in Cutler Township, Franklin County	Lawrence.
Ratchiff ; creek, a right-hand branch of Solomon River, in Mitchell County.....	Beloit.
	{ Kinsley. Pratt. Great Bend. Lyons. Spearville. Ashland.
Rattlesnake ; creek (known as Salt Creek near its mouth), a right-hand branch of Arkansas River, in Ford, Kiowa, Edwards, Stafford, and Reno counties.	
Rattlesnake ; creek, a right-hand branch of Salt Creek, in Lincoln County	Beloit.
Rawlins ; northwestern county; organized 1881; area, 1,080 square miles; population, 5,079; county seat, Atwood; mean magnetic declination, 11° 35'; rainfall, 18 inches; temperature, 52°.	

The surface is an undulating, treeless plain, drained by Beaver Creek. The elevation ranges from 2,500 to 3,400 feet. About one-fifth only of the area is under cultivation. It is crossed by a branch of the Burlington and Missouri River Railway.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Achilles.....	48	203
Arbor.....	36	104
Atwood.....	56	704
Atwood.....		493
Beaver.....	40	165
Burntwood.....	108	353
Celia.....	108	350
Clinton.....	76	360
Driftwood.....	80	377
Elk.....		183
Grant.....	36	95
Herndon.....	48	490
Jefferson.....	48	150
Laing.....	48	240
Logan.....	36	178
Ludell.....	84	284
Mikesell.....	36	98
Mirage.....	72	135
Richland.....	48	332
Rotate.....	72	178
Union.....		100

- Ray**; post village and station on Missouri Pacific Railway, in Logan Township, Pawnee County; altitude, 1,977 feet..... Atlas sheets. Great Bend.
- Raymond**; city on Atchison, Topeka and Santa Fe Railway, in Raymond Township, Rice County; altitude, 1,730 feet; population, 137 (1890)..... Lyons.
- Raymond**; township in Rice County; area, 72 square miles; population, 753..... Lyons.
- Rayville**; post village in Norton County.
- Ravanna**; post village in Finney County.
- Reading**; city on Atchison, Topeka and Santa Fe Railway, in Reading Township, Lyon County; altitude, 1,079 feet; population, 288..... Burlingame.
- Reading**; township in Lyon County; area, 69 square miles; population, 1,050. { Emporia.
Eskridge.
Burlington.
Burlingame.
- Reamsville**; post village in Martin Township, Smith County.. Smith Center.
- Red**; creek, a left-hand branch of Chikaskia River, in Kingman County. { Anthony.
Kingman.
- Red Bud**; post village in Cowley County.
- Redfield**; city on Missouri Pacific Railway, in Marmaton Township, Bourbon County; altitude, 863 feet; population, 162 (1890)..... Fort Scott.
- Redhole**; creek, a right-hand branch of Bear Creek, in Clark County..... Ashland.
- Red Vermillion**; township in Nemaha County; area, 36 square miles; population, 683..... Seneca.
- Red Vermillion**; creek, a left-hand branch of Vermilion River, in Pottawatomie and Nemaha counties..... Seneca.
- Red Wing**; station on Missouri Pacific Railway, in Cheyenne Township, Barton County..... Russell.
- Reece**; city on Missouri Pacific Railway, in Spring Creek Township, Greenwood County; altitude, 1,230 feet; population 179 (1890)..... Eureka.

Atlas sheets.

- Reeder**; township in Anderson County; area, 72 square miles; population, 1,182. { Garnett.
Burlington.
- Reeder**; township in Kiowa County; area, 66 square miles; population, 52 Coldwater.
- Reedsville**; post village in Center Township, Marshall County. Marysville.
- Reford**; station on Union Pacific Railway, in Solomon Township, Graham County; altitude, 2,226 feet Hill.
- Redly**; township in Nemaha County; area, 36 square miles; population, 733. { Seneca.
Hiawatha.
- Reno**; central county; organized, 1872; area, 1,260 square miles; population, 25,598; county seat, Hutchinson; mean magnetic declination, 10° 05'; rainfall, 26 inches; temperature, 55°. { Lyons.
Hutchinson.
Kingman.
Cheney.

The surface is an undulating, treeless plain, much of the western part being covered with sand hills. The elevation ranges from 1,400 to 1,800 feet. It is an agricultural county, three-fifths of its area being under cultivation, mainly in corn. It is traversed by branches of the Missouri Pacific and the Chicago, Rock Island and Pacific railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Albion	36	725
Arlington	36	620
Arlington		303
Bell	36	387
Castleton	54	383
Center	36	575
Clay	48	544
Enterprise	36	429
Grant	42	1,634
Nickerson		1,034
Grove	36	423
Haven	70	1,351
Hayes	72	599
Huntsville	36	518
Langdon	36	451
Lincoln	56	883
Little River	36	834
Loda	36	442
Medford	32	391
Medora	26	303
Miami	36	353
Ninnescah	39	314
Plevna	36	322
Reno	46	8,909
Hutchinson		8,172
Roscoe	36	318
Salt Creek	54	703
Sumner	42	423
Sylvia	36	588
Sylvia		227
Troy	36	249
Valley	60	845
Walnut	36	592
Westminster	36	414

- Reno**; city on Union Pacific Railway, in Reno Township, Leavenworth County; altitude, 837 feet; population, 101 ... Oskaloosa. Atlas sheets.

Atlas sheets.

- teno**; township in Leavenworth County; area, 43 square miles; population, 1,161. { Oskaloosa.
Lawrence.
- teno**; township in Reno County; area, 46 square miles; population, 8,909. { Lyons.
Hutchinson.
- Republican**; northern county; organized 1868; area, 720 square miles; population, 15,658; county seat, Belleville; mean magnetic declination, 9° 45'; rainfall, 25 inches; temperature, 52°. { Concordia.
Washington.

The surface is a treeless plain, somewhat eroded by streams. The elevation ranges from 1,400 to 1,700 feet. It is drained by Republican River, which flows across it in a southerly direction. It is an agricultural county, nearly three-fourths of its area being under cultivation, mainly in corn. It is traversed by branches of the Chicago, Rock Island and Pacific, the Missouri Pacific, the Union Pacific, the Burlington and Missouri River, and the Atchison, Topeka and Santa Fe railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Albion	36	711
Beaver	36	546
Belleville	36	1,974
Belleville		1,320
Big Bend	36	831
Republic		220
Courtland	36	689
Courtland		161
Elk Creek	36	641
Fairview	36	750
Farmington	36	670
Freedom	36	583
Grant	36	6.8
Jefferson	36	762
Liberty	36	698
Lincoln	36	614
Norway	36	683
Richland	36	1,166
Cuba		367
Rose Creek	36	649
Scandia	36	1,080
Scandia		443
Union	36	722
Washington	36	662
White Rock	36	529

- Republican**; city on Missouri Pacific Railway, in Big Bend Township, Republic County; altitude, 1,495 feet; population, 220. { Atlas sheets.
Concordia.
- Republican**; township in Clay County; area, 31 square miles; population, 859. { Clay Center.
Junction City.
- Republican**; river, one of the two main branches of Kansas River. It heads in eastern Colorado and flows northeast across the northwest corner of Kansas into Nebraska, where it sweeps around in a great curve to a southeast course, enters Kansas again on the 98th meridian and joins Smoky Hill Fork at Junction City. { Junction City.
Clay Center.
Washington.
Concordia.
Mankato.
- Reserve**; city on Missouri Pacific Railway, in Hamlin Township, Brown County; altitude, 901 feet; population, 103 ... Hiawatha.

Atlas sheets.

Rest; post village in Wilson County.**Review**; township in Haskell County; area, 64 square miles; population, 63.**Rexburg**; post village in Gypsum Creek Township, McPherson County Abilene.**Rexford**; post village in Thomas County; altitude, 2,927 feet.**Rhinehart**; post village in Dickinson County.**Rice**; central county; organized, 1871; area, 720 square miles; population, 13,650; county seat, Lyons; mean magnetic declination, 9° 50'; rainfall, 26 inches; temperature, 54°. { Lyons.
Great Bend.

The surface is a rolling, treeless plain, drained by Arkansas River, which crosses the county from northwest to southeast. The elevation ranges from 1,500 to 1,800 feet. Nearly two-thirds of its area are under cultivation, mainly in corn and wheat. The county is traversed by branches of the Atchison, Topeka and Santa Fe, the Missouri Pacific, and the St. Louis and San Francisco railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Atlanta	48	2, 172
Lyons		1, 586
Center	36	472
Eureka	36	552
Farmer	36	572
Galt	36	364
Lincoln	36	637
Mitchell	36	465
Pioneer	36	471
Raymond	72	753
Rockville	36	426
Sterling	58	2, 764
Sterling		1, 932
Union	72	1, 286
Little River		402
Valley	30	586
Victoria	48	931
Geneseo		283
Washington	72	696
Wilson	36	503

Rice; post village and railway station on Missouri Pacific Railway, in Lawrence Township, Cloud County; altitude, 1,335 feet Concordia.**Rich**; township in Anderson County; area, 54 square miles; population, 1,210 Garnett.**Richfield**; township in Morton County; area, 180 square miles; population, 27.**Richie**; creek, a left-hand tributary to East Branch of Neosho River, in Morris County Eskridge.**Richland**; post village and station on Atchison, Topeka and Santa Fe and the Union Pacific railways, in Monmouth Township, Shawnee County; altitude, 895 feet Burlingame.**Richland**; township in Butler County; area, 36 square miles; population, 622. { Wichita.
Wellington.

	Atlas sheets.
Richland ; township in Cowley County; area, 72 square miles; population, 1,138.....	Burden.
Richland ; township in Ford County; area, 37 square miles; population, 66.....	Dodge.
Richland ; township in Gray County; area, 72 square miles; population, 90.....	Dodge.
Richland ; township in Hamilton County; area, 165 square miles; population, 67.	
Richland ; township in Harvey County; area, 36 square miles; population, 486.....	Wichita.
Richland ; township in Jewell County; area, 36 square miles; population, 448.....	Mankato.
Richland ; township in Kingman County; area, 36 square miles; population, 416.	{ Kingman. Anthony.
Richland ; township in Labette County; area, 43 square miles; population, 3,433.....	Parsons.
Richland ; township in Marshall County; area, 36 square miles; population, 899.....	Seneca.
Richland ; township in Miami County; area, 72 square miles; population, 1,469.	{ Olathe. Lawrence.
Richland ; township in Ottawa County; area, 36 square miles; population, 315.	{ Minneapolis. Clay Center.
Richland ; township in Pratt County; area, 37 square miles; population, 273.....	Pratt.
Richland ; township in Rawlins County; area, 48 square miles; population, 332.	
Richland ; township in Republic County; area, 36 square miles; population, 1,166.....	Washington.
Richland ; township in Rooks County; area, 36 square miles; population, 227.	{ Plainville. Hill.
Richland ; township in Stafford County; area, 36 square miles; population, 297.....	Pratt.
Richland ; creek, a left-hand tributary of Dutch Creek, in Cowley County.....	Burden.
Richland ; creek, a left-hand branch of Big Sugar Creek, in Linn County.....	Mound City.
Richmond ; post village and station on Atchison, Topeka and Santa Fe Railway, in Richmond Township, Franklin County; altitude, 1,019 feet.....	Garnett.
Richmond ; township in Franklin County; area, 35 square miles; population, 869.....	Garnett.
Richmond ; township in Nemaha County; area, 36 square miles; population, 2,861.....	Seneca.
Richter ; post village in Franklin County.	
Riddle ; creek, a left-hand branch of Mill Creek, in Washington County.....	Washington.
Ridge ; post village in Woodson County.	
Ridge ; township in Dickinson County; area, 36 square miles; population, 679.....	Abilene.
Ridgeway ; post-office and station on Union Pacific Railway, in Elk Township, Osage County.....	Burlingame.
Ridgeway ; township in Osage County; area, 42 square miles; population, 1,554.....	Burlingame.

Riley; northern county; organized, 1855; area, 617 square miles; population, 12,436; county seat, Manhattan; mean magnetic declination, 9° 30'; rainfall, 30 inches; temperature, 53°.

Atlas sheets.

Clay Center.
Junction City.

The surface is a rolling plain, with bluffs bordering the valleys of Republican, Kansas, and Big Blue rivers. The elevation ranges from 1,000 to 1,400 feet. Of the area of the county about one-half is cultivated, mainly in corn. Several railways traverse the county.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Ashland.....	32	273
Bala	42	1,048
Leonardville		314
Center	32	482
Fancy Creek	32	463
Grant	38	491
Jackson	35	866
Randolph		376
Manhattan	39	3,827
Manhattan		2,916
Mayday	32	522
Madison	58	1,076
Ogden	75	954
Ogden		167
Sherman	30	568
Swede Creek	48	774
Wild Cat	50	525
Zeandale	60	617

Atlas sheets.

Riley Center; a hamlet in Madison Township, Riley County .. Junction City.

Riley; creek, a right-hand branch of Salt Creek, in Republic

County Concordia.

Rinehart; township in Dickinson County; area, 36 square miles; population, 404. { Abilene.
Parkerville.

Risley; township in Marion County; area, 36 square miles; population, 1,434 Newton.

River; township in Pawnee County; area, 36 square miles; population, 278. { Larned.
Great Bend.

Riverdale; post village on Chicago, Rock Island and Pacific and Missouri Pacific railways, in Sumner County; altitude, 1,320 feet.

Riverside; post-office in High Point Township, Ness County .. Ness.

Riverside; township in Trego County; area, 120 square miles; population, 194.

Roanoke; post village in Stanton County.

Roanoke; township in Stanton County; area, 72 square miles; population, 47.

Roberts; post village in Barton County.

Robert; creek, a right-hand branch of Kansas River, in Wabaunsee County Wamego.

Robinson; city in Robinson Township, Brown County; population, 456 Atchison.

Robinson; township in Brown County; area, 45 square miles; population, 1,374 Atchison.

Atlas sheets.

Robinson ; township in Stanton County; area, 72 square miles; population, 89.	
Rochester ; post village in Rochester Township, Kingman County; altitude, 1,677	Anthony.
Rochester ; township in Kingman County; area, 36 square miles; population, 343	Anthony.
Rock ; post village and railroad station in Rock Township, Cowley County	Wellington.
Rock ; township in Marshall County; area, 36 square miles; population, 661	Seneca.
Rock ; creek, a left-hand branch of Whitewater River, in Butler County.	{ Eldorado. Wichita.
Rock ; creek, a left-hand branch of Walnut River, in Butler and Cowley counties.	{ Eldorado. Burden. Wellington.
Rock ; creek, a left-hand branch of South Fork Cottonwood River, in Chase County	Cottonwood Falls.
Rock ; creek, a small, right-hand branch of Neosho River, in Coffey and Woodson counties	Burlington.
Rock ; creek, a small, right-hand branch of Neosho River, in Coffey County	Burlington.
Rock ; creek, a right-hand branch of Big Cana Creek, in Cowley and Chautauqua counties.	{ Burden. Sedan.
Rock ; creek, a left-hand branch of Walnut River, in Cowley County	Wellington.
Rock ; creek, a branch of Independence Creek, in Doniphan County; length, 8 miles	Atchison.
Rock ; creek, a right-hand branch of Wakarusa Creek, in Douglas County	Lawrence.
Rock ; creek, a left-hand branch of Elk River, in Elk County.	{ Sedan. Eureka.
Rock ; creek, a right-hand branch of Osage River, in Franklin County	Lawrence.
Rock ; creek, a left-hand branch of Bluff Creek, in Harper County	Caldwell.
Rock ; creek, a right-hand tributary to Pawnee River, in Hodgeman County	Ness City.
Rock ; creek, a small, left-hand branch of Grasshopper Creek, in Jefferson County	Oskaloosa.
Rock ; creek, a right-hand branch of Grasshopper Creek, in Jefferson County	Oskaloosa.
Rock ; creek, a small left-hand branch of Big Stranger Creek, in Leavenworth County	Oskaloosa.
Rock ; creek, a left-hand branch of Verdigris River, in Lyon County	Emporia.
Rock ; creek, a small right-hand branch of Big Bull Creek, in Miami County	Olathe.
Rock ; creek, a right-hand branch of Salt Creek, in Mitchell County	Beloit.
Rock ; creek, a left-hand branch of Neosho River, in Morris, Lyon, and Wabaunsee counties	Esksridge.
Rock ; creek, a left-hand branch of Neosho River, in Neosho County	Iola.

	Atlas sheets.
Rock ; creek, a right-hand branch of Marias des Cygnes Creek, in Osage and Coffey counties.	{ Burlington. Burlingame.
Rock ; creek, a right-hand branch of Osage River, in Osage County	Burlingame.
Rock ; creek, a right-hand branch of Vermilion River, in Pottawatomie County	Wamego.
Rock ; creek, a left-hand branch of North Fork of Ninnescah River, in Reno County.	{ Cheney. Kingman.
Rock ; creek, a left-hand branch of North Fork of Ninnescah River, in Sedgwick and Reno counties	Cheney.
Rock ; creek, a small right-hand branch of Snake Creek, in Wilson County	Fredonia.
Rock ; creek, a right-hand tributary to Missouri River.	
Rock Branch ; township in Norton County; area, 36 square miles; population, 387	Norton.
Rock Creek ; post village in Jefferson County; altitude, 1,059 feet.	
Rock Creek ; township in Butler County; area, 36 square miles; population, 394.	{ Eldorado. Burden.
Rock Creek ; township in Coffey County; area, 54 square miles; population, 1,662	Burlington
Rock Creek ; township in Cowley County; area, 36 square miles; population, 533.	{ Burden. Wellington.
Rock Creek ; township in Jefferson County; area, 55 square miles; population, 1,605	Topeka.
Rock Creek ; township in Nemaha County; area, 36 square miles; population, 2,163	Hiaawatha.
Rock Creek ; township in Pottawatomie County; area, 36 square miles; population, 855	Wamego.
Rock Creek ; township in Wabaunsee County; area, 66 square miles; population, 750	Eskridge.
Rockford ; post village in Bourbon County.	
Rockford ; township in Sedgwick County; area, 39 square miles; population, 1,004.	{ Wichita. Wellington.
Rockport ; post village in Rocks County.	
Rockville ; post village in Miami County.	
Rockville ; township in Rice County; area, 36 square miles; population, 426.	{ Lyons. Hutchinson.
Rockwell ; township in Norton County; area, 36 square miles; population, 334.	
Rockwell ; post village in Norton County.	
Rodger ; branch, a left-hand tributary of Chikaskia River, in Sumner County	Caldwell.
Rogers ; post-office and station on Missouri Pacific Railway, in Summit Township, Chautauqua County; altitude, 906 feet.	Sedan.
Roger ; branch, a right-hand tributary of Middle Creek, in Miami County	Olathe.
Roger ; branch, a small tributary to Osage River, in Miami County	Olathe.
Roland ; post village in Leavenworth County.	
Rollin ; post village in Neosho County.	
Rolling Prairie ; township in Morris County; area, 48 square miles; population, 978	Parkerville.
Rome ; post village and station on Atchison, Topeka and Santa Fe Railway, in Jackson Township, Sumner County; altitude, 1,222 feet	Wellington.

Atlas sheets.

Rooks; northern county; organized, 1872; area, 900 square miles; population, 7,270; county seat, Stockton; mean magnetic declination, $10^{\circ} 50'$; rainfall, 22 inches; temperature, 53° .

Norton.
Phillipsburg.
Hill.
Plainville.

The surface is a treeless plain, somewhat broken by stream erosion. It is drained by the South Fork of Solomon River. The elevation ranges from 1,600 to 2,200 feet. About one-third its area is under cultivation, mainly in corn and wheat. It is traversed by branches of the Missouri Pacific and the Union Pacific railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Alcona	36	140
Ash Rock	36	387
Belmont	36	301
Bow Creek	36	239
Corning	36	255
Farmington	36	189
Greenfield	36	201
Hobart	36	192
Iowa	36	269
Lanark	36	241
Logan	36	407
Lowell	36	414
Medicine	36	253
Northampton	36	376
Paradise	72	397
Plainville	72	835
Plainville		272
Richland	36	227
Rush	36	184
Stockton	36	948
Stockton		736
Sugar Loaf	36	116
Twin Mound	36	382
Walton	72	317

Roper; post village in Wilson County.

Atlas sheets.

Rosalia; post-office and railway station, on Missouri Pacific Railway, in Rosalia Township, Butler County; altitude, 1,519 feet

Eldorado.

Rosalia; township in Butler County; area, 60 square miles; population, 522

Eldorado.

Roscoe; township in Reno County; area, 36 square miles; population, 318

Kingman.

Rose; post-office in Eminence Township, Woodson County

Fredonia.

Rose Bud; creek, a left-hand tributary to Chikaskia River, in Kingman County.

Anthony.
Kingman.

Rosedale; city in Shawnee Township, Wyandotte County, on Kansas City, Fort Scott and Memphis Railway; altitude, 797 feet; population, 2,095

Kansas City.

Rose Creek; township in Republic County; area, 36 square miles; population, 649.

Washington.
Concordia.

Rose; creek, a right-hand branch of Little Blue River, which it joins in southern Nebraska

Concordia.

Atlas sheets.

Rosehill ; post village and station on Atchison, Topeka and Santa Fe Railway, in Richland Township, Butler County; altitude, 1,337 feet	Wichita.
Rosemont ; post village in Osage County.	
Rosette ; post village in Lincoln County.	
Rose Valley ; township in Stafford County; area, 36 square miles; population, 330	Pratt.
Ross ; township in Cherokee County; area, 54 square miles; population, 1,796	Joplin.
Ross ; township in Osborne County; area, 36 square miles; population, 1,411.	{ Smith Center. Osborne.
Ross ; creek, a right-hand tributary to Verdigris River, in Wilson County	Fredonia.
Rossville ; city in Rossville Township, Shawnee County, on Union Pacific Railway; altitude, 928 feet; population, 559..	Topeka.
Rossville ; township in Shawnee County; area, 46 square miles; population, 1,537.	{ Topeka. Wamego.
Rotate ; township in Rawlins County; area, 72 square miles; population, 178.	
Round Mound ; post-office in Round Mound Township, Osborne County	Osborne.
Round Mound ; township in Osborne County; area, 36 square miles; population, 302.	{ Osborne. Plainville.
Round Mound ; hill in Round Mound Township, Osborne County	Osborne.
Round Mound ; hill in Glencoe Township, Trego County; altitude, 2,340 feet	Ellis.
Round Spring ; township in Mitchell County; area, 36 square miles; population, 232	Beloit.
Roundup ; post village in Nippewalla Township, Barber County	Medicine Lodge.
Rovohl ; township in Thomas County; area, 108 square miles; population, 302.	
Royal ; township in Ford County; area, 72 square miles; population, 97	Dodge.
Roy ; creek, a small branch of Missouri River, in Brown County	Atchison.
Rozel ; post-office and station on Atchison, Topeka and Santa Fe Railway, in Grant Township, Pawnee County; altitude, 2,072 feet	Larned.
Rubens ; post-office in Richland Township, Jewell County....	Mankato.
Ruble ; post village in Leavenworth County.	
Ruella ; post-office and station on Missouri Pacific Railway, in Eagle Township, Harper County; altitude, 1,331 feet.....	Anthony.
Ruella ; township in Harper County; area 13 square miles; population, 469	Anthony.
Ruleton ; post village on Chicago, Rock Island and Pacific Railway, in Sherman County; altitude, 3,788 feet.	
Rumsey ; township in Comanche County; area, 87 square miles; population, 44	Coldwater.
Running Turkey ; creek, a left-hand branch of Turkey Creek, in McPherson County.....	Hutchinson.
Runningmeade ; post village in Chikaskia Township, Harper County	Caldwell.
Rural ; post village in Chase County.	

Atlas sheets.

- Rural**; township in Jefferson County; area, 28 square miles; population, 992..... Oskaloosa.
- Rural**; township in Kingman County; area, 36 square miles; population, 307..... Kingman.
- Rush**; central county; organized, 1874; area, 720 square miles; population, 5,067; county seat, Lacrosse; mean magnetic declination, 10° 05'; rainfall, 23 inches; temperature, 54°. Ellis.
Hays.
Ness.
Larned.

The surface is a treeless plain, somewhat eroded by streams. It is drained by Walnut Creek and branches of Smoky Hill River. The elevation ranges from 1,900 to 2,300 feet. The proportion of cultivated land is about four-tenths, mainly in wheat. It is traversed by branches of the Atchison, Topeka and Santa Fe and the Missouri Pacific railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Alexander.....	42	190
Banner.....	54	354
Belle Prairie.....	54	167
Big Timber.....	48	425
Brookdale.....	42	279
Center.....	54	236
Rush Center.....		107
Fairview.....	48	239
Garfield.....	54	329
Hampton.....	48	442
McCracken.....		203
Illinois.....	48	285
Lacrosse.....	42	612
Lacrosse.....		390
Lone Star.....	42	547
Pioneer.....	42	539
Pleasantdale.....	48	281
Union.....	54	142

- Rush**; township in Rooks County; area, 36 square miles; population, 184..... Plainville.
- Rush**; creek, a left-hand branch of Bluff Creek, in Harper County..... Anthony.
- Rush Center**; city in Center Township, Rush County, on Atchison, Topeka and Santa Fe Railway; population, 107; altitude, 2,004 feet..... Larned.
- Rushville**; a hamlet in Ford County..... Spearville.
- Rushville**; township in Phillips County; area, 36 square miles; population, 254..... Phillipsburg.
- Russell**; central county; organized, 1872; area, 900 square miles; population, 7,085; county seat, Russell; mean magnetic declination, 10°; rainfall, 25 inches; temperature, 53°. Plainville.
Osborne.
Hays.
Russell.

The surface is a treeless plain, greatly eroded by streams. The elevation ranges from 1,400 to 1,900 feet. It is drained by Smoky Hill and Saline rivers, which flow eastward across it. Four-tenths of its area are under cultivation, largely in wheat and corn. It is traversed by a branch of the Union Pacific Railway,

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Big Creek	72	522
Center	141	997
Bunker Hill		123
Fairfield	40	241
Fairview	216	1,577
Waldo		32
Luray		86
Lucas		128
Lincoln	90	823
Paradise	144	525
Plymouth	108	1,026
Dorrance		137
Russell	54	1,056
Russell		878
Winterset	36	318

- Russell**; city in Russell Township, county seat of Russell County, on Union Pacific Railway; altitude, 1,828 feet; population, 878 Atlas sheets. Russell.
- Russell**; township in Russell County; area, 54 square miles; population, 1,056 Russell.
- Russell Springs**; city in Russell Springs Township; county seat of Logan County; population, 84.
- Russell Springs**; township in Logan County; area, 108 square miles; population, 195.
- Ruth**; post village in Decatur County.
- Rutland**; post-office in Rutland Township, Montgomery County. Independence.
- Rutland**; township in Montgomery County; area, 72 square miles; population, 1,102 Independence.
- Ruweda**; post village in Greenwood County.
- Ryan**; post village on St. Joseph and Grand Island Railway, in Rush County; altitude, 889 feet.
- Ryan**; township in Sumner County; area, 36 square miles; population, 713 Caldwell.
- Rydal**; post village in Republic County.
- Sabetha**; city in Rock Creek Township, Nemaha County, on St. Joseph and Grand Island and Chicago, Rock Island and Pacific railways; altitude, 1,305 feet; population, 1,446 Hiawatha.
- Sac**; creek, a left-hand branch of Pottawatomie Creek, in Anderson and Franklin counties Garnett.
- Saffordville**; post village and station on Atchison, Topeka and Santa Fe Railway, in Toledo Township, Chase County; altitude, 1,149 feet Emporia.
- St. Benedict**; post-office in Richmond Township, Nemaha County Seneca.
- St. Bridget**; post-office in St. Bridget Township, Marshall County Seneca.
- St. Bridget**; township in Marshall County; area, 36 square miles; population, 1,014 Seneca.
- St. Clere**; post-office in St. Clere Township, Pottawatomie County Wamego.
- St. Clere**; township in Pottawatomie County; area, 30 square miles; population, 356 Wamego.

Atlas sheets.

- St. Francis**; post village on Burlington and Missouri River Railway; county seat of Cheyenne County; altitude, 3,288 feet.
- St. George**; post village and station on Union Pacific Railway, in St. George Township, Pottawatomie County; altitude, 993 feet Wamego.
- St. George**; township in Pottawatomie County; area, 33 square miles; population, 500 Wamego.
- St. Jacobs**; well, in Vesta Township, Clark County Ashland.
- St. John**; city in St. John Township, county seat of Stafford County, on Atchison, Topeka and Santa Fe Railway; magnetic declination, $10^{\circ} 15'$; population, 702; altitude, 1,915 feet. { Great Bend.
Pratt.
- St. John**; township in Stafford County; area, 36 square miles; population, 1,080. { Great Bend.
Pratt.
- St. Joseph**; post village in Cloud County.
- St. Mark**; post village in Sedgwick County Cheney.
- St. Marys**; city in St. Marys Township, Pottawattomie County, on Union Pacific Railway; altitude, 957 feet; population, 1,291. Wamego.
- St. Marys**; township in Pottawatomie County; area, 37 square miles; population, 1,944. Wamego.
- St. Paul**; post village, in Neosho County.
- St. Theresa**; post village in Wichita County.
- Salamanca**; township in Cherokee County; area, 36 square miles; population, 3,332 Joplin.
- Salem**; post village on Atchison, Topeka and Santa Fe Railway, in White Mound Township, Jewell County; altitude, 1,567 feet. Mankato.
- Salem**; township in Allen County; area, 48 square miles; population, 826. Iola.
- Salem**; township in Gray County; area, 108 square miles; population, 90. { Dodge.
Garden.
- Salem**; township in Greenwood County; area, 176 square miles; population, 257. { Emporia.
Cottonwood Falls.
Eureka.
Eldorado.
- Salem**; township in Sedgwick County; area, 32 square miles; population, 671. { Wichita.
Wellington.
- Salemsburg**; post village in Saline County.
- Salina**; city in Smoky Hill Township; county seat of Saline County, on Atchison, Topeka and Santa Fe, Union Pacific, Missouri Pacific, and Chicago, Rock Island and Pacific railways; magnetic declination, $10^{\circ} 35'$; altitude, 1,226 feet; population, 5,406. Salina.
- Saline**; central county; organized, 1859; area, 720 square miles; population, 15,572; county seat, Salina; mean magnetic declination, $9^{\circ} 55'$; rainfall, 27 inches; temperature, 53° { Salina.
Abilene.

The surface is a broken, treeless plain, traversed by the broad, level valleys of Smoky Hill and Saline rivers. The elevation ranges from 1,200 to 1,600 feet. Nearly three-fifths of its area are under cultivation, mainly in wheat and corn. It is traversed by branches of the Union Pacific, the Missouri Pacific, and the Atchison, Topeka and Santa Fe railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Cambria	36	662
Dayton	36	464
Elm Creek	36	540
Eureka	36	986
Gypsum	36	561
Falun	36	594
Glendale	36	283
Greeley	33	465
Gypsum	36	434
Liberty	36	405
Ohio	36	446
Pleasant Valley	36	381
Smoky Hill	40	6, 028
Salina	36	5, 406
Smoky View	35	1, 040
Smolan	30	639
Solomon	36	493
Spring Creek	72	632
Summit	36	176
Walnut	42	477
Washington	36	427

Saline; township in Ellis County; area, 156 square miles; population, 367..... Atlas sheets. Plainville.

Saline; township in Sheridan County; area, 144 square miles; population, 205.

Saline; river, a branch of Smoky Hill River. It heads in the northwestern part of Kansas and flows generally eastward to its junction with Smoky Hill River, at Salina.

Salt; station on St. Louis and San Francisco Railway, in Walton Township, Sumner County Wellington.

Salt; creek, a right-hand branch of Elk River, in Chautauqua and Montgomery counties Sedan.

Salt; creek, a left-hand branch of Republican River, in Cloud and Republic counties Concordia.

Salt; creek, a right-hand branch of Fall River, in Greenwood County Eureka.

Salt; creek, a small tributary through Plum Creek to Missouri River, in Leavenworth County; length, 7 miles Kansas City.

Salt; creek, a right-hand branch of Solomon River, in Mitchell, Lincoln, and Ottawa counties. { Beloit.
Minneapolis.

Salt; creek, a left-hand branch of Verdigris River, in Montgomery County Independence.

Salt; creek, a left-hand branch of Osage River, in Osage County. Burlingame.

Salt; creek, a right-hand branch of Arkansas River, in Reno County. { Lyons.
Hutchinson.

Salt; creek, a right-hand branch of Saline River, in Russell County Russell.

Salt; creek, a right-hand tributary of Arkansas River, in Sumner and Cowley counties Wellington.

Salt; creek, a left-hand branch of Mill Creek, in Washington County Washington.

Salt; creek, a left-hand branch of Fall River, in Wilson County. Fredonia.

Salt; marsh in Beaver and Grant townships, in Republic and Cloud counties Concordia.

	Atlas sheets.
Salt ; marsh in Putnam Township, Stafford County.....	Great Bend.
Salt ; marsh in Buffalo Township, Cloud County	Concordia.
Salt ; springs in Putnam Township, Stafford County.....	Great Bend.
Salt Creek ; township in Chautauqua County; area, 49 square miles; population, 560.	Sedan.
Salt Creek ; township in Lincoln County; area, 36 square miles; population, 430.	Independence.
Salt Creek ; township in Mitchell County; area, 36 square miles; population, 301.....	Beloit.
Salt Creek ; township in Reno County; area, 54 square miles; population, 703.....	Minneapolis.
Salt Fork ; a branch of Arkansas River, in Barber and Comanche counties; it joins the Arkansas in Oklahoma, most of its course being in that Territory.....	Beloit.
Salt Marsh ; a lake in Stafford County.....	Lyons.
Salt Springs ; township in Greenwood County; area, 74 square miles; population, 1,362.	Medicine Lodge.
Saltville ; post village in Salt Creek Township, Mitchell County.	Lyons.
Sand ; creek, a left-hand branch of Medicine Lodge River, in Barber County	Eureka.
Sand ; creek, a left-hand branch of Bluff Creek, in Comanche, Kiowa, and Clark counties.	Fredonia.
Sand ; creek, a left-hand tributary to Arkansas River, in Cowley County.....	Beloit.
Sand ; creek, a right-hand branch of South Fork Solomon River, in Graham County	Wellington.
Sand ; creek, a right-hand branch of Chikaskia River, in Harper and Sumner counties	Hill.
Sand ; creek, a left-hand branch of Little Arkansas River, in Harvey County.	Caldwell.
Sand ; creek, a right-hand branch of South Fork of Ninescah River, in Kingman County	Newton.
Sand ; creek, a large right-hand branch of Chikaskia River, in Kingman, Barber, and Pratt counties.	Wichita.
Sand ; creek, a left-hand branch of Walnut Creek, in Rush County.	Kingman.
Sand ; creek, a right-hand branch of Ninescah River, in Sedgwick and Kingman counties.....	Anthony.
Sand ; creek, a left-hand branch of Spring Creek, in Sedgwick County	Medicine Lodge.
Sand ; creek, a right-hand branch of Smoky Hill River, in Trego County	Pratt.
Sandago ; post village in Stafford County.	Hays.
Sand Creek ; township in Meade County; area, 105 square miles; population, 123	Larned.
Sand Creek ; township in Norton County; area, 36 square miles; population, 249	Cheney.
Sandy ; creek, a left-hand branch of Chikaskia River, in Harper and Kingman counties	Cheney.
Sandy ; creek, branch of Salt Fork of Arkansas River, in Harper and Barber counties	Ellis.
Sandy ; creek, a left-hand branch of Verdigris River, in Wilson and Woodson counties	Anthony.
	Fredonia.

Atlas sheets.

Santa Fe ; city in Haskell Township, county seat of Haskell County; population, 166 (1890).....	Garden.
Sappa ; creek, a branch of Republican River, heading in north-western Kansas in two forks, known as North and South Sappa creeks, and flowing northeast to its junction with Republican River, in southern Nebraska.	
Saratoga ; village on Atchison, Topeka and Santa Fe Railway, in Saratoga Township, Pratt County; altitude, 1,846 feet ..	Pratt.
Saratoga ; township in Pratt County; area, 9 square miles; population, 136.....	Pratt.
Sarcozie ; post village in Jefferson County.	
Sarcozie ; township in Jefferson County; area, 35 square miles; population, 709	Oskaloosa.
Satchel ; creek, a left-hand tributary to Walnut River, in Butler County	Eldorado.
Saunders ; post village in Rush County.	
Savonburg ; city in Elsinore Township, Allen County; altitude, 1,056 feet; population, 180	Iola.
Sawlog ; township in Hodgeman County; area, 72 square miles; population, 124.	
Sawlog ; creek, a right-hand branch of Pawnee River, in Ford and Hodgeman counties.	{ Dodge. Spearville. Nees City.
Sawmill ; creek, a right-hand tributary to Pawnee River, in Pawnee County.	{ Nees City. Larned.
Sawyer ; post village and station on Atchison, Topeka and Santa Fe Railway, in Paxson Township, Pratt County; altitude, 1,914 feet.....	Pratt.
Saxman ; post village in Rice County.	
Scammon ; city in Mineral Township, Cherokee County, on St. Louis, Kansas City and Memphis Railway; population, 748. (1890).....	Joplin.
Scandia ; city in Scandia Township, Republic County, on Missouri Pacific and Chicago, Rock Island and Pacific railways; altitude, 1,428 feet; population, 443	Concordia.
Scandia ; township in Republic County; area, 36 square miles; population, 1,080.....	Concordia.
Scatter ; creek, a right-hand branch of Neosho River, in Allen and Woodson counties.	{ Iola. Fredonia.
Scatter ; creek, a small, right-hand tributary to Big Stranger Creek, in Jefferson County.....	Oskaloosa.
Schengen ; village in Lookout Township, Ellis County.....	Hays.
Schonholm ; station on Atchison, Topeka & Santa Fe Railway, in Lincoln Township, Butler County	Eldorado.
School ; branch, a left-hand branch of Halderman Creek, in Greenwood County.....	Emporia.
School ; creek, a small, left-hand branch of Grouse Creek, in Cowley County.....	Burden.
School ; creek, a left-hand branch of Republican River, in Republic County	Concordia.
Schroyer ; post-office and station on Union Pacific Railway, in Elm Creek Township, Marshall County; altitude, 1,154 feet.....	Marysville.
Scipio ; post village and station on Missouri Pacific Railway, in Anderson County.....	Garnett.

Atlas sheets.

Scott; western county; organized, 1886; area, 720 square miles; population, 1,045; county seat, Scott; mean magnetic declination, 11° 20'; rainfall, 20 inches; temperature, 54°.

The surface is an undulating, treeless plain. The elevation ranges from 2,900 to 3,100 feet. Little of the area is under cultivation. It is traversed by branches of the Missouri Pacific and the Atchison, Topeka and Santa Fe railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Beaver	120	141
Isabel	80	93
Keystone	72	175
Lake	120	91
Michigan	128	75
Scott	80	311
Valley	120	159

Scott; city in Scott Township, county seat of Scott County, on Missouri Pacific Railway; altitude, 2,971 feet; population, 229 (1890). Atlas sheets.

Scott; township in Bourbon County; area, 75 square miles; population, 2,216. Fort Scott.

Scott; township in Lincoln County; area, 36 square miles; population, 412. Beloit.

Scott; township in Linn County; area, 64 square miles; population, 1,300. Mound City.

Scott; township in Scott County; area, 80 square miles; population, 311.

Scott; branch, a small branch of Big Bull Creek, in Miami County. Olathe.

Scott; creek, a small, left-hand tributary to Neosho River, in Coffey County. Burlington.

Scott; creek, a right-hand branch of Big Stranger Creek, in Leavenworth and Jefferson counties. Oskaloosa.

Scottsville; post village on Missouri Pacific Railway, in Mitchell County; altitude, 1,561 feet.

Scranton; city in Scranton Township, Osage County, on Atchison, Topeka and Santa Fe Railway; altitude, 1,105 feet; population, 1,240. Burlingame.

Scranton; township in Osage County; area 36 square miles; population, 2,164. Burlingame.

Scribner; creek, a left-hand branch of Republican River, in Washington County. Washington.

Scully; creek, a left-hand branch of North Fork Solomon River, in Norton County. Norton.

Seabrook; post village in Shawnee County.

Seaman; post village in Linn County.

Seapo; station on Chicago, Burlington and Quincy Railroad, in Grant Township, Republic County. Concordia.

Sedan; city in Sedan Township, county seat of Chautauqua County, on Missouri Pacific Railway; altitude, 838 feet; population, 1,119. Sedan.

Atlas sheets.

- Sedan**; township in Chautauqua County; area, 48 square miles; population, 1,686 Sedan
- Sedgwick**; city in Sedgwick Township, Harvey County, on Atchison, Topeka and Santa Fe Railway; altitude, 1,377 feet; population, 612 Wichita.
- Sedgwick**; township in Harvey County; area, 36 square miles; population, 1,234 Wichita.
- Sedgwick**; southern county; organized, 1870; area, 1,008 square miles; population, 37,836; county seat, Wichita; mean magnetic declination, 9° 30'; rainfall, 30 inches; temperature, 56° { Cheney.
Wichita.
Caldwell.
Wellington.

The surface is an undulating, treeless plain, drained by Arkansas River, which flows southeast across the county; the elevation ranges from 1,200 to 1,500 feet; more than half the population of the county are in the city of Wichita (19,892). Aside from this city the county is agricultural, three-fourths of its area being under cultivation, mainly in corn, wheat, and oats. Wichita being a railway center of importance, the county is well supplied with these means of transportation, being traversed by branches of the Atchison, Topeka and Santa Fe, the Chicago, Rock Island and Pacific, the Missouri Pacific, the St. Louis and San Francisco, and the Wichita and Western railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Afton	36	398
Attica	36	799
Goddard		213
Delano	40	582
Eagle	36	610
Erie	36	248
Garden Plain	36	743
Grand River	36	410
Grant	36	655
Greeley	36	818
Mount Hope		278
Gypsum	50	664
Illinois	36	416
Kechi	36	810
Lincoln	36	553
Minneha	36	518
Morton	36	709
Cheney		314
Ninnescah	36	731
Clearwater		277
Ohio	36	498
Park	36	813
Payne	36	631
Rockford	39	1,004
Mulvane		199
Derby		(1895) 257
Salem	32	671
Sherman	36	806
Union	36	812
Colwich		186
Valley Center	36	927
Valley Center		319
Viola	36	454
Waco	56	1,025
Wichita	34	20,531
Wichita		19,892

Atlas sheets.

- Sedowa**; post village in Sedgwick County.
- Seely**; post village and station on Atchison, Topeka and Santa Fe Railway, in Ninnescah Township, Cowley County; altitude, 1,171 feet. Wellington.
- Sego**; post village in Reno County.
- Seguin**; post village in Sheridan County.
- Selden**; post village on Chicago, Rock Island and Pacific Railway, in Sheridan County; altitude, 2,834 feet.
- Selkirk**; post village in Wichita County; altitude, 3,438 feet.
- Seller**; creek, a right-hand branch of Smoky Hill River, in Russell County Russell.
- Selma**; post village and station on Missouri Pacific Railway, in Anderson County; altitude, 1,073 feet. Garnett.
- Seneca**; city in Richmond Township, county seat of Nemaha County, on St. Joseph and Grand Island Railway; altitude, 1,151 feet; population, 1,927. Seneca.
- Sevenmile**; creek, a small branch of Missouri River, in Leavenworth County. Kansas City.
- Sevenmile**; creek, a left-hand branch of Kansas River, in Riley County Junction City.
- Seventysix**; Township in Sumner County; area, 36 square miles; population, 489. Wellington.
- Severance**; city in Wolf River Township, Doniphan County, on St. Joseph and Grand Island Railway; altitude, 899 feet; population, 482. Atchison.
- Severy**; city in Twin Groves Township, Greenwood County, on Atchison, Topeka and Santa Fe and St. Louis and San Francisco railways; altitude, 1,104 feet; population, 366. Eureka.
- Seward**; southwestern county; organized, 1886; area, 648 square miles; population, 688; county seat, Liberal; mean magnetic declination, 10° 25'; rainfall, 20 inches; temperature, 56°.

The surface is an undulating, treeless plain, drained by Cimarron River, which crosses the county from northwest to southeast. Little of the area is under cultivation. The county is crossed by a branch of the Chicago, Rock Island and Pacific Railway.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Cimarron	108	38
Fargo	117	139
Garfield	108	14
Liberal	99	377
Seward	108	44
Springfield	108	76

- Seward**; post village and station on Missouri Pacific Railway, in Seward Township, Stafford County; altitude, 1,917 feet. Great Bend.
- Seward**; township in Seward County; area, 108 square miles; population, 44.
- Seward**; township in Stafford County; area, 72 square miles; population, 571. Great Bend.
- Sexton**; post village in Eagle Township, Barber County. Medicine Lodge.
- Shady Bend**; post-office and station on Union Pacific Railway, in Colorado Township, Lincoln County; altitude, 1,348 feet. Beloit.

Atlas sheets.

Atlas sheets.

Shaffer; post village in Rush County.**Shaffer**; creek, a left-hand branch of Diamond Creek, in Chase County. { Cottonwood Falls.
Parkerville.**Shanghai**; creek, a left-hand branch of Grant Creek, in Chautauqua County..... Sedan.**Shannon**; post village and station on Missouri Pacific Railway, in Atchison County; altitude, 1,105 feet Atchison.**Shannon**; township in Atchison County; area, 56 square miles; population, 1,797..... Atchison.**Shannon**; township in Pottawatomie County; area, 32 square miles; population, 542. { Wamego.
Junction City.**Sharon**; post village and station on Atchison, Topeka and Santa Fe Railway, in Sharon Township, Barber County; altitude, 1,456 feet Anthony.**Sharon**; township in Barber County; area, 72 square miles; population, 431..... Anthony.**Sharon Springs**; city in Sharon Springs Township, county seat of Wallace County, on Union Pacific Railway; altitude, 3,440 feet; population, 178 (1890).**Sharon Springs**; township in Wallace County; area, 135 square miles; population, 410.**Sharpe**; post village in Coffey County; altitude, 1,169 feet.**Sharpscreek**; post village in McPherson County.**Sharps**; creek, a right-hand branch of Smoky Hill River, in Rice and McPherson counties. { Hutchinson.
Salina.**Shaw**; post village in Neosho County; altitude, 904 feet.**Shawnee**; eastern county; organized, 1855; area, 558 square miles; population, 47,461; county seat, Topeka; mean magnetic declination, 10° 20'; rainfall, 32 inches; temperature, 53°. { Topeka.
Burlingame.

The surface is a plain, somewhat eroded by streams. It is drained by Kansas River, which flows from west to east across the county. The area is treeless except in the stream valleys. The elevation ranges from 900 to 1,200 feet. Two-thirds the population of the county are in Topeka. Aside from that it is an agricultural county, three-fourths of its area being cultivated, mainly in corn. It is traversed by branches of the Union Pacific, the Chicago, Rock Island and Pacific, and the Atchison, Topeka and Santa Fe railways. Some coal is mined within the county.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Auburn	56	974
Dover	54	1,119
Menoken	47	738
Mission	42	1,011
Monmouth	56	1,325
Rossville	46	1,537
Rossville		(1895) 559
Silver Lake	57	714
Silver Lake		360
Soldier	73	1,538
Tecumseh	36	1,046
Topeka	40	5,174
Williamsport	42	673
Topeka		31,612

Atlas sheets.

- Shawnee**; post village in Shawnee Township, Johnson County, on Kansas City, Fort Scott and Memphis Railway; altitude, 923 feet. Kansas City.
- Shawnee**; township in Cherokee County; area, 36 square miles; population, 797. Joplin.
- Shawnee**; township in Johnson County; area, 36 square miles; population, 2,171. { Olathe.
Kansas City.
- Shawnee**; township in Wyandotte County; area, 23 square miles; population, 2,305. Kansas City.
- Shawnee**; creek, a right-hand branch of Spring River, in Cherokee County. Joplin.
- Shaw**; creek, a small right-hand branch of Mulberry Creek, in Saline County. Salina.
- Shell Rock**; township in Greenwood County; area, 54 square miles; population, 644. { Emporia.
Burlington.
- Shellrock**; creek, a left-hand branch of Little Beaver Creek, in Cowley County. Burden.
- Shelter**; creek, a right-hand branch of Smoky Hill River, in Rush County. Hays.
- Sherdahl**; post village in Republic County.
- Sheridan**; northwestern county; organized, 1880; area, 900 square miles; population, 2,789; county seat, Hoxie; mean magnetic declination, $11^{\circ} 40'$; rainfall, 20 inches; temperature, 53° .

The surface is an undulating, treeless plain, drained by South Fork of Solomon River. The elevation ranges from 2,200 to 2,900 feet. A small part of the county only is under cultivation. It is crossed by a branch of the Chicago, Rock Island and Pacific Railway.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Adell	54	236
Bloomfield	36	124
Bow Creek	72	226
Kenneth	36	315
Hoxie		211
Logan	72	241
Parnell	72	267
Prairie Dog	36	157
Saline	144	205
Sheridan	54	303
Solomon	108	294
Spring Brook	108	118
Union	36	151
Valley	72	152

Atlas sheets.

- Sheridan**; township in Cherokee County; area, 63 square miles; population, 1,425. { Joplin.
Parsons.
- Sheridan**; township in Cowley County; area, 36 square miles; population, 466. Burden.
- Sheridan**; township in Crawford County; area, 72 square miles; population, 3,382. Joplin.
- Sheridan**; township in Grant County; area, 108 square miles; population, 19.
- Sheridan**; township in Linn County; area, 45 square miles; population, 1,471. Mound City.

Atlas sheets.

- Sheridan**; township in Ottawa County; area, 36 square miles; population, 923 Minneapolis.
- Sheridan**; township in Sheridan County; area, 54 square miles; population, 303.
- Sheridan**; township in Washington County; area, 36 square miles; population, 675 Washington.
- Sherlock**; station on Atchison, Topeka and Santa Fe Railway, in Sherlock Township, Finney County; altitude, 2,885 feet.. Garden.
- Sherlock**; township in Finney County; area, 162 square miles; population, 429 Garden.
- Sherman**; post village in Cherokee County.
- Sherman**; township in Clay County; area, 30 square miles; population, 858 { Clay Center.
Washington.
- Sherman**; township in Crawford County; area, 72 square miles; population, 1,366 Fort Scott.
- Sherman**; township in Decatur County; area, 36 square miles; population, 270.
- Sherman**; northwestern county; organized, 1886; area, 1,080 square miles; population, 4,081. County seat, Goodland; mean magnetic declination, 11° 30'; rainfall, 15 inches; temperature, 53°.

The surface is an undulating, treeless plain, drained by the forks of Sappa Creek and by Beaver Creek. The elevation ranges from 3,300 to 3,900 feet. Little of its area is crossed by a branch of the Chicago, Rock Island and Pacific Railway.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Grant	144	450
Iowa	108	111
Itasca	36	1,161
Goodland		1,016
Llanos	72	224
Lincoln	72	246
Logan	54	266
McPherson	72	179
Shermanville	72	139
Smoky	126	392
State Line	72	218
Union	54	161
Voltaire	144	368
Washington	54	166

Atlas sheets.

- Sherman**; township in Dickinson County; area, 30 square miles; population, 478 Clay Center.
- Sherman**; township in Ellsworth County; area, 36 square miles; population, 394 Ellsworth.
- Sherman**; township in Grant County; area, 108 square miles; population, 132.
- Sherman**; township in Leavenworth County; area, 42 square miles; population, 1,381. { Oskaloosa.
Kansas City.
Lawrence.
Olathe.
- Sherman**; township in Ottawa County; area, 36 square miles; population, 419. { Minneapolis.
Clay Center.
- Sherman**; township in Pottawatomie County; area, 36 square miles; population, 506 Wamego.

Atlas sheets.

Sherman ; township in Riley County; area, 30 square miles; population, 568	Junction City.
Sherman ; township in Sedgwick County; area, 36 square miles; population, 806	Cheney.
Sherman ; township in Washington County; area, 36 square miles; population, 825	Washington.
Shermanville ; township in Sherman County; area, 72 square miles; population, 139.	
Sherwin Junction ; post village in Cherokee County.	
Sherwood ; post village in Smith County.	
Shibboleth ; post village in Decatur County.	
Shields ; post village on Missouri Pacific Railway, in Lane County; altitude, 2,779 feet.	
Shiloh ; township in Neosho County; area, 48 square miles; population, 887.	{ Parsons. Independence.
Shimer ; township in Comanche County; area, 87 square miles; population, 56	Coldwater.
Shirley ; township in Cloud County; area, 44 square miles; population, 971	Concordia.
Shoal ; creek, a left-hand branch of Spring River, in Cherokee County, Kans., and Jasper County, Mo.	Joplin.
Shockey ; post village in Grant County.	
Shonganunga ; creek, a right-hand branch of Kansas River, in Shawnee County	Topeka.
Shore ; creek, a left-hand branch of Chikaskia River, in Sumner County	Caldwell.
Shorey ; post village in Shawnee County.	
Short ; creek, a left-hand branch of Spring River, in Cherokee County, Kans., and Jasper County, Mo.	Joplin.
Short ; creek, a right-hand branch of East Branch (of Neosho River), in Morris County	Parkerville.
Short ; creek, a right-hand branch of East Fork of Neosho River, in Morris County	Parkerville.
Short ; creek, a left-hand tributary of Arkansas River, in Sumner County	Wellington.
Sibley ; post village and station on Atchison, Topeka and Santa Fe Railway, in Wakarusa Township, Douglas County; altitude, 819 feet	Lawrence.
Sibley ; township in Cloud County; area, 33 square miles; population, 611	Concordia.
Sidney ; village in Franklin Township, Ness County, on Atchison, Topeka and Santa Fe Railway; altitude, 2,794 feet	Ness.
Silica ; post village on Atchison, Topeka and Santa Fe Railway, in Rice County; altitude, 1,786 feet.	
Silver ; creek, a left-hand branch of Cottonwood River, in Chase County	Cottonwood Falls.
Silver ; creek, a right-hand branch of Grouse Creek, in Cowley County	Burden.
Silver ; creek, a right-hand tributary to Missouri River.	
Silver ; creek, a left-hand branch of Bluff Creek, in Harper County	Anthony.
Silver ; creek, a left-hand branch of Onion Creek, in Montgomery County	Independence.
Silver ; creek, a right-hand branch of North Fork of Ninnescah River, in Reno County	Kingman.
Silver ; creek, a right-hand branch of Ninnescah River, in Sumner County	Wellington.

Atlas sheets.

Silver Brook ; creek, a left-hand branch of Chikaskia River, in Sumner County	Caldwell.
Silver Creek ; township in Cowley County; area, 36 square miles; population, 1,036.	Burden.
Silver Creek ; township in Harper County; area, 36 square miles; population, 449.	Caldwell.
Silverdale ; post village in Cowley County.	
Silverdale ; township in Cowley County; area, 54 square miles; population, 532.	Burden.
Silver Lake ; city in Silver Lake Township, Shawnee County, on Union Pacific Railway; altitude, 913 feet; population, 360.	Topeka.
Silver Lake ; township in Shawnee County; area, 57 square miles; population, 714.	Topeka.
Simmon ; creek, a left-hand branch of Cottonwood River, in Chase County	Cottonwood Falls.
Simpson ; post village and station on Union Pacific Railway, in Logan Township, Mitchell County	Minneapolis.
Sinclair ; township in Jewell County; area, 36 square miles; population, 562.	{ Mankato. Concordia.
Sinn ; township in Wichita County; area, 72 square miles; population, 155.	
Sitka ; station on Atchison, Topeka and Santa Fe Railway, in Sitka Township, Clark County; altitude, 1,879 feet	Ashland.
Sitka ; township in Clark County; area, 80 square miles; population, 84.	Ashland.
Sixmile ; creek, a left-hand branch of Diamond Creek, in Chase and Morris counties.	{ Cottonwood Falls. Parkerville.
Sixmile ; creek, a tributary to Big Bull Creek, in Miami County	Olathe.
Sixmile ; creek, a left-hand branch of Wakarusa Creek, in Shawnee County	Burlingame.
Skiddy ; station on Missouri, Kansas and Texas Railway, in Rolling Prairie Township, Morris County; altitude, 1,222 feet.	Parkerville.
Skull ; creek, a left-hand branch of Grouse Creek, in Cowley County	Burden.
Skunk ; creek, a right-hand branch of South Fork of Solomon River, in Graham County	Hill.
Slate ; post village in Rooks County.	
Slate ; creek, a tributary of West Creek, in Greenwood County.	{ Eureka. Emporia.
Slate ; creek, a right-hand branch of Arkansas River, in Sumner County.	{ Wellington. Caldwell.
Slough ; creek, a left-hand branch of Neosho River, in Morris County	Parkerville.
Smith ; northern county; organized, 1872; area, 900 square miles; population, 13,280; county seat, Smith Center; mean magnetic declination, 11° 05'; rainfall, 24 inches; temperature, 52°.	{ Phillipsburg. Smith Center.

The surface is a high, rolling, treeless plain, intersected by the valley of the North Fork of Solomon River. The elevation ranges from 1,500 to 2,100 feet. It is an agricultural county, three-fifths of its area being under cultivation, mainly in corn. It is crossed by branches of the Chicago, Rock Island and Pacific and the Missouri Pacific railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Banner	36	737
Gaylord		253
Beaver	36	368
Blaine	36	623
Cedar	36	694
Kensington		219
Center	36	1, 096
Smith Center		728
Cora	36	515
Crystal Plains	36	514
Dor	36	266
Garfield	36	323
German	36	449
Harlan	36	454
Harvey	36	583
Houston	36	350
Lane	36	605
Lincoln	36	390
Logan	36	563
Martin	36	515
Oak	36	1, 034
Lebanon		338
Pawnee	36	405
Pleasant	36	512
Swan	36	455
Washington	36	430
Webster	36	426
White Rock	36	545
Valley	36	428

Smith; township in Thomas County; area, 36 square miles; population, 191. Atlas sheets.

Smith; branch, a small branch of Big Bull Creek, in Miami County Olathe.

Smith; creek, a right-hand branch of Dragon Creek, in Osage County Burlingame.

Smith Center; city in Center Township, county seat of Smith County, on Chicago, Rock Island and Pacific Railway; magnetic declination, $11^{\circ} 20'$; altitude, 1,800 feet; population, 728 Smith Center.

Smoky; township in Sherman County; area, 126 square miles; population, 392.

Smoky Hill; township in Ellis County; area, 81 square miles; population, 163. { Ellis.
Hays.

Smoky Hill; township in Geary County; area, 70 square miles; population, 6,516. { Parkerville.
Junction City.

Smoky Hill; township in McPherson County; area, 36 square miles; population, 2,078. Salina.

Smoky Hill; township in Saline County; area, 40 square miles; population, 6,028. Salina.

Smoky Hill Buttes; hills in Smoky Hill and Falun townships, Saline County; altitude, 1,580 feet. Salina.

Smoky Hill; river, the southern of the two main forks of Kansas River. It heads in eastern Colorado and flows in a generally eastern direction across Wallace, Logan, Gove, Trego, Ellis, Russell, Ellsworth, Saline, and Dickinson counties to its junction with Republican River at Junction City; length, 463 miles. { Ellis.
Hays.
Russell.
Ellsworth.
Salina.
Abilene.

	Atlas sheets.
Smoky View ; township in Saline County; area, 35 square miles; population, 1,040.	Salina.
Smolan ; post village and station on Missouri Pacific Railway, in Smolan Township, Saline County; altitude, 1,276 feet.	Salina.
Smolan ; township in Saline County; area, 30 square miles; population, 639.	Salina.
Smoot ; creek, a left-hand branch of South Fork of Ninnescah River, in Kingman County.	{ Cheney. Kingman.
Snake ; creek, a right-hand branch of Cimarron River, in Clark County.	Ashland.
Snake ; creek, a right-hand branch of Verdigris River, in Wilson County.	Fredonia.
Snokomo ; post village in Wabaunsee County.	
Snokomo ; creek, a right-hand branch of Mill Creek, in Wabaunsee County.	{ Eskridge. Wamego.
Snow ; creek, flows south from Independence sheet into the Territory.	{ Parsons. Independence.
Snyder ; post village in Ford County.	
Snyder ; creek, a right-hand branch of Slate Creek, in Sumner County.	Wellington.
Sodville ; township in Ford County; area, 36 square miles; population, 76.	{ Spearville. Ashland.
Soldier ; city in Soldier Township, Jackson County, on Union Pacific Railway; altitude, 1,185 feet; population, 257.	Hiawatha.
Soldier ; township in Jackson County; area, 42 square miles; population, 1,066.	{ Hiawatha. Seneca. Wamego. Topeka.
Soldier ; township in Shawnee County; area, 73 square miles; population, 1,538.	Topeka.
Soldier ; creek, a right-hand branch of Dragon Creek, in Osage and Wabaunsee counties.	Burlingame.
Soldier Cap Mound ; hill in Washington Township, Saline County.	Salina.
Solomon ; city in Lincoln Township, Dickinson County, on Union Pacific, Atchison, Topeka and Santa Fe, and Chicago, Rock Island and Pacific railways; population, 830; altitude, 1,171 feet.	Abilene.
Solomon ; township in Cloud County; area, 54 square miles; population, 1,238.	Minneapolis.
Solomon ; township in Graham County; area, 55 square miles; population, 218.	Hill.
Solomon ; township in Norton County; area, 36 square miles; population, 309.	Norton.
Solomon ; township in Phillips County; area, 36 square miles; population, 452.	Phillipsburg.
Solomon ; township in Saline County; area, 36 square miles; population, 493.	Abilene.
Solomon ; township in Sheridan County; area, 108 square miles; population, 294.	
Solomon ; river, a large branch of Smoky Hill River. It heads in the northwestern part of the State and flows at first in a direction slightly north of east, and swinging around to a southeasterly curve, joins Smoky Hill River at Solomon City.	{ Abilene. Salina. Minneapolis. Beloit.

Atlas sheets.

Solomon Rapids ; post-office and station on Missouri Pacific Railway, in Solomon Rapids Township, Mitchell County; altitude, 1,393 feet	Beloit.
Solomon Rapids ; township in Mitchell County; area, 36 square miles; population, 502.	Beloit. Mankato.
Somerset ; post village and station on Missouri Pacific Railway, in Middle Creek Township, Miami County	Olathe.
South ; branch, fork of Otter Creek, in Greenwood County....	Eureka.
South ; branch, right-hand tributary to Eagle Creek, in Lyon County	Emporia.
South ; branch, a right-hand branch of Mission Creek, in Wabaunsee County	Eskridge.
South ; fork, a right-hand branch of Big Sugar Creek, in Linn County	Mound City.
South ; fork, a left-hand branch of Black Vermilion River, in Marshall County.....	Seneca.
South Bend ; township in Barton County; area, 36 square miles; population, 326	Great Bend.
South Branch Spillman ; creek, right fork of Spillman Creek, in Lincoln County	Beloit.
South Cedar ; post village in Jackson County.	
South Cottonwood ; river, a right-hand branch of Cottonwood River, in Marion County	Newton.
South Fork of Cottonwood ; a right-hand branch of Cottonwood River, in Chase County.	Cottonwood Falls. Emporia.
South Fork of Marmaton ; a right-hand branch of Marmaton River, in Bourbon County	Fort Scott.
South Fork of Ninnescah ; in Sedgwick, Kingman, and Pratt counties.	Cheney. Kingman. Pratt.
South Fork of Solomon ; a right-hand branch of Solomon River, in Sheridan, Graham, Rooks, Osborne, and Mitchell counties.	Hill. Plainville. Osborne. Beloit.
South Haven ; city in South Haven Township, Sumner County, on Atchison, Topeka and Santa Fe, and St. Louis and San Francisco railways; altitude, 1,123 feet; population, 273	Wellington.
South Haven ; township in Sumner County; area, 54 square miles; population, 1,084	Wellington.
South Hutchinson ; city in Reno Township, Reno County, on Atchison, Topeka and Santa Fe, Chicago, Rock Island and Pacific, and Missouri Pacific railways; population, 321 (1890)	Hutchinson.
South Mound ; post-office and station on Missouri, Kansas and Texas Railway, in Lincoln Township, Neosho County; altitude, 989 feet	Parsons.
South Owl ; creek, a right-hand branch of Owl Creek, in Woodson County	Fredonia.
South Roscoe ; township in Hodgeman County; area, 72 square miles; population, 85.	
South Salem ; township in Greenwood County; area, —; population, 514.	
South Sharp ; creek, a right-hand branch of Sharp Creek, in McPherson County	Hutchinson.
South Sharps Creek ; township in McPherson County; area, 36 square miles; population, 430.	Salina. Hutchinson.

Atlas sheets.

Southside ; post village in Wyandotte County.	
Southside ; township in Kearney County; area, 164 square miles; population, 200.	
Sparta ; post village in McPherson County.	
Spearville ; post village and station on Atchison, Topeka and Santa Fe Railway, in Spearville Township, Ford County; altitude, 2,458	Spearville.
Spearville ; township in Ford County; area, 185 square miles; population, 498	Spearville.
Speed ; post village in Phillips County.	
Spillman ; creek, a left-hand branch of Saline River, in Lincoln County	Beloit.
Spivey ; city in Chikaskia Township, Kingman County, on Atchison, Topeka and Santa Fe Railway; population 206 (1890); altitude, 1,498 feet.	
Spring ; township in Butler County; area, 36 square miles; population, 626	Eldorado.
Spring ; township in Harper County; area, 54 square miles; population, 366.	Anthony. Caldwell.
Spring ; branch, a left-hand branch of Bluff Creek, in Harper County	Caldwell.
Spring ; creek, a right-hand branch of Grasshopper Creek, in Atchison, Jackson, and Nemaha counties	Hiawatha.
Spring ; creek, a small, right-hand branch of Big Stranger Creek, in Atchison County	Oskaloosa.
Spring ; creek, a left-hand branch of Walnut Creek, in Brown County	Hiawatha.
Spring ; creek, a right-hand branch of Cottonwood River, in Chase County	Emporia.
Spring ; creek, a small, right-hand branch of Cottonwood River, in Chase County	Cottonwood Falls.
Spring ; creek, a left-hand branch of Big Cana Creek, in Chautauqua County	Sedan.
Spring ; creek, a left-hand branch of Middle Cana Creek, in Chautauqua County	Sedan.
Spring ; creek, a branch of Day Creek, tributary to Cimarron River, in Clark County	Ashland.
Spring ; creek, a small, left-hand branch of Neosho River, in Coffey and Woodson counties	Burlington.
Spring ; creek, a left-hand tributary of Arkansas River, in Cowley County	Wellington.
Spring ; creek, a right-hand branch of Walnut River, in Cowley County	Wellington.
Spring ; creek, a left-hand branch of Walnut River, in Cowley County	Wellington.
Spring ; creek, a right-hand branch of Wakarusa Creek, in Douglas County	Lawrence.
Spring ; creek, a left-hand branch of Smoky Hill River, in Ellsworth County	Ellsworth.
Spring ; creek, a right-hand branch of Fall River, in Greenwood County	Eureka.
Spring ; creek, a left-hand branch of Bluff Creek, in Harper County	Anthony.

	Atlas sheets.
Spring ; creek, a right-hand branch of Chikaskia River, in Harper County	Caldwell.
Spring ; creek, a right-hand tributary to Pawnee River, in Hodgeman County	Ness City.
Spring ; creek, a left-hand tributary to Grasshopper Creek, in Jefferson County	Oskaloosa.
Spring ; creek, a left-hand branch of Smoot Creek, in Kingman and Reno counties	Cheney.
Spring ; creek, a right-hand branch of Bullfoot Creek, in Lincoln County	Ellsworth.
Spring ; creek, a right-hand branch of Doyle Creek, in Marion County	Cottonwood Falls.
Spring ; creek, a left-hand branch of Big Blue River, in Marshall County	Marysville.
Spring ; creek, a right-hand branch of Onion Creek, in Montgomery County	Independence.
Spring ; creek, a left-hand tributary to Verdigris River, in Montgomery County	Independence.
Spring ; creek, a right-hand branch of Four Mile Creek, in Morris County	Parkerville.
Spring ; creek, a left-hand branch of Deer Creek, in Phillips County	Phillipsburg.
Spring ; creek, a right-hand branch of Mulberry Creek and tributary to Saline River, in Saline County	Salina.
Spring ; creek, a left-hand branch of Arkansas River, in Sedgwick County	Wichita.
Spring ; creek, a left-hand branch of North Fork of Ninnescah River, in Sedgwick County	Cheney.
Spring ; creek, a left-hand branch of Ninnescah River, in Sedgwick County	Cheney.
Spring ; creek, a right-hand branch of Four Mile Creek and tributary to Walnut River, in Sedgwick County	Wichita.
Spring ; creek, a left-hand tributary to Ninnescah River, in Sedgwick County	{ Wellington. Wichita.
Spring ; creek, a left-hand branch of Oak Creek, in Smith County	Smith Center.
Spring ; creek, a left-hand branch of Chikaskia River, in Sumner County	Caldwell.
Spring ; creek, a left-hand tributary to Fall Creek, in Sumner County	Caldwell.
Spring ; creek, a left-hand branch of Chikaskia River, in Sumner County	Caldwell.
Spring ; creek, a right-hand branch of Ninnescah River, in Sumner County	Wellington.
Spring ; creek, a left-hand tributary of Slate Creek, in Sumner County	Wellington.
Spring ; creek, a left-hand branch of Middle Shoo Fly Creek, in Sumner County	Wellington.
Spring ; creek, a right-hand branch of Saline River, in Trego County	Hill.
Spring ; creek, a left-hand branch of West Branch Mill Creek, in Wabauensee County	Eskridge.
Spring ; creek, a left-hand branch of Mill Creek, in Washington County	Washington.

Atlas sheets.

- Spring**; creek, a small, left-hand branch of Kansas River, in Wyandotte County; length, 3 miles Kansas City.
- Spring Brook**; township in Sheridan County; area, 108 square miles; population, 118.
- Spring Creek**; post village in Chautauqua County.
- Spring Creek**; township in Coffey County; area, 35 square miles; population, 587 Burlington.
- Spring Creek**; township in Cowley County; area, 45 square miles; population, 454 Burden.
- Spring Creek**; township in Greenwood County; area, 54 square miles; population, 446. { Eureka.
Eldorado.
- Spring Creek**; township in Lane County; area, 80 square miles; population, 135.
- Spring Creek**; township in Pottawatomie County; area, 40 square miles; population, 390. { Marysville.
Seneca.
Junction City.
Wamego.
- Spring Creek**; township in Saline County; area, 72 square miles; population, 632 Salina.
- Spring**; river, a left-hand branch of Neosho River. It heads in Jasper County, Mo., and runs through Cherokee County, Kans., into Indian Territory to its mouth Joplin.
- Springdale**; post village on Atchison, Topeka and Santa Fe Railway, in Leavenworth County; altitude, 1,034 feet.
- Springdale**; township in Sumner County; area, 36 square miles; population, 474 Caldwell.
- Springfield**; station on Chicago, Rock Island and Pacific and Union Pacific railways, in Center Township, Clay County.. Clay Center.
- Springfield**; post village in Seward County.
- Springfield**; township in Seward County; area, 108 square miles; population, 76.
- Spring Hill**; city in Spring Hill Township, Johnson County, on Kansas City, Fort Scott and Memphis Railway; altitude, 1,030 feet; population, 671 Olathe.
- Spring Hill**; township in Johnson County; area, 30 square miles; population, 1,329 Olathe.
- Springs**; post village in Brown County.
- Springvale**; post-office in Spring Creek Township, Pottawatomie County Marysville.
- Springvale**; post village and station on Atchison, Topeka and Santa Fe Railway, in Springvale Township, Pratt County; altitude, 1,952 feet Pratt.
- Springvale**; township in Pratt County; area, 36 square miles; population, 151. { Kinsley.
Pratt.
Medicine Lodge.
Coldwater.
- Spring Valley**; post-office in Meridian Township, McPherson County Newton.
- Spring Valley**; township in Cherokee County; area, 51 square miles; population, 3,117.
- Spring Valley**; township in McPherson County; area, 36 square miles; population, 702 Newton.
- Squaw**; creek, a branch of Wolf Creek; length five miles; in Doniphan and Brown counties Atchison.

Atlas sheets.

Stafford; central county; organized, 1879; area, 792 square miles; population, 8,052; county seat, St. John; mean magnetic declination, 9° 35'; rainfall, 25 inches; temperature, 54°. Larned.
Great Bend.
Kinsley.
Pratt.

The surface is a treeless plain, largely covered with sand hills. The elevation ranges from 1,800 to 2,100 feet. About half its area is under cultivation, mainly in corn and wheat. It is traversed by branches of the Missouri Pacific and the Atchison, Topeka and Santa Fe railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Albano.....	36	263
Byron.....	36	351
Clearcreek.....	36	197
Cleveland.....	36	190
Cooper.....	72	585
Douglas.....	36	209
Fairview.....	36	436
Farmington.....	36	363
Mackaville.....		147
Hayes.....	36	350
Lincoln.....	36	289
Ohio.....	36	429
Putnam.....	72	268
Richland.....	36	297
Rose Valley.....	36	330
Seward.....	72	571
St. John.....	36	1,080
St. John.....		702
Stafford.....	36	916
Stafford.....		585
Union.....	36	471
York.....	36	457

Stafford; city in Stafford Township, Stafford County, on Missouri Pacific and Atchison, Topeka and Santa Fe railways; altitude, 1,865 feet; population, 585 Atlas sheets.
Pratt.

Stafford; township in Stafford County; area, 36 square miles; population, 916 Pratt.

Stag; creek, a left-hand branch of Gypsum Creek, in Saline County. Abilene.
Salina.

Standish; post village in Leavenworth County.

Stanley; post-office and railway station on Atchison, Topeka and Santa Fe Railway, in Oxford Township, Johnson County; altitude, 975 feet Olathe.

Stanton; southwestern county; organized, 1887; area, 672 square miles; population, 471; county seat, Johnson; mean magnetic declination, 11°; rainfall, 15 inches; temperature, 55°. Albany.
Vilas.

The surface is an undulating, treeless plain. Little of its area is under cultivation.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Borders	126	25
Falkenstein	126	45
Liverpool	72	109
Mitchell	72	58
Roanoke	72	47
Robinson	72	89
Stanton	144	98

Stanton; post village in Miami County. Atlas sheets.

Stanton; township in Linn County; area, 30 square miles; population, 630. Mound City.

Stanton; township in Ottawa County; area, 36 square miles; population, 470. Minneapolis.

Stanton; township in Miami County; area, 44 square miles; population, 908. { Olathe.
{ Lawrence.

Stanton; township in Stanton County; area, 144 square miles; population, 98.

Staples; post village in Kiowa County.

Star; post village in Greenwood County.

Star; township in Coffey County; area, 34 square miles; population, 692. Burlington.

Stark; post village on Missouri, Kansas and Texas Railway, in Neosho County; altitude, 1,040 feet.

Starr; township in Cloud County; area, 36 square miles; population, 860. Clay Center.

Starvale; post village in Cherokee County.

State Line; township in Sherman County; area, 72 square miles; population, 218.

Sterling; city in Sterling Township, Rice County, on Atchison, Topeka and Santa Fe Railway; altitude, 1,644 feet; population, 1,932. Lyons.

Sterling; township in Hodgeman County; area, 144 square miles; population, 354. { Spearville.
{ Ness City.

Sterling; township in Rice County; area, 58 square miles; population, 2,764. Lyons.

Sternerton; a hamlet in Louisburg Township, Montgomery County. Independence.

Steuben; post village in Jewell County.

Stevens; southwestern county; organized, 1886; area, 729 square miles; population, 688; county seat, Hugoton; mean magnetic declination, 11° 35'; rainfall, 18 inches; temperature, 56°.

The surface is an undulating, treeless plain, drained by Cimarron River and its tributaries. Little of its area is under cultivation.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Center	54	78
Cleveland	81	69
Dermot	81	44
Harmony	54	102
Lafayette	81	76
Lincoln	54	70
Moscow	108	65
Niagara	81	29
Voorhees	81	81
Woodsdale	54	74

- Stewart**; creek, a right-hand branch of Walnut River, in Atlas sheets.
Cowley County Wellington.
- Stillman**; branch (named Switzler Creek on Eskridge sheet); Emporia.
a right-hand branch of Dows Creek, in Lyon County. Eskridge.
- Stilwell**; post village in Johnson County.
- Stippville**; post village and station on Kansas City, Fort Scott
and Memphis Railway, in Mineral Township, Cherokee
County Joplin.
- Stitt**; post village in Dickinson County.
- Stockdale**; post-office and station on Blue Valley and Manhat-
tan Railway, in Grant Township, Riley County; altitude,
1,029 feet. Junction City.
- Stockholm**; post village in Wallace County.
- Stockholm**; township in Wallace County; area, 72 square
miles; population, 161.
- Stockton**; city in Stockton Township, county seat of Rooks
County, on Missouri Pacific Railway; magnetic declination,
10° 55'; altitude, 1,775 feet; population, 736 Plainville.
- Stockton**; township in Rooks County; area, 36 square miles;
population, 948 Plainville.
- Stohrville**; township in Harper County; area, 81 square miles;
population, 669 Caldwell.
- Stonehouse**; creek, a left-hand branch of Kansas River, in
Jefferson County Oskaaloosa.
- Stotler**; post village in Lyon County.
- Stowbridge**; creek, a right-hand branch of Wakarusa Creek,
in Osage and Shawnee counties Burlingame.
- Stowell**; post village in Hamilton County.
- Straight**; creek, a right-hand branch of Spring Creek, in Jack-
son County Hiawatha.
- Straight**; creek, a left-hand tributary to Vermilion River, in
Pottawatomie County Seneca.
- Straight Creek**; post village on Chicago, Rock Island and Pa-
cific Railway, in Jackson County; altitude, 996 feet.
- Straight Creek**; township in Jackson County; area, 36 square Hiawatha.
miles; population, 679. Topeka.
- Stranger**; village and railway station in Sherman Township,
Leavenworth County Oskaaloosa.
- Stranger**; township in Leavenworth County; area, 50 square Oskaaloosa.
miles; population, 942. Kansas City.
- Strawberry**; post village in Washington County.

	Atlas sheets.
Sun ; post village in Barber County, in Sun City Township....	Medicine Lodge.
Sun City ; township in Barber County; area, 48 square miles; population, 116.	{ Medicine Lodge. Coldwater.
Sunnydale ; post village in Sedgwick County.	
Sunnyside ; hamlet in Garfield Township, Dickinson County...	Abilene.
Superior ; township in McPherson County; area, 36 square miles; population, 1,093	Hutchinson.
Superior ; township in Osage County; area, 32 square miles; population, 1,319	Burlingame.
Survey ; hamlet in Madison Township, Rooks County	Plainville.
Sutphen ; post village in Dickinson County.	
Sutton ; post village in Lane County.	
Sutton ; township in Lane County; area, 80 square miles; population, 76.	
Sutton ; right-hand branch of Verdigris River, in Wilson County	Fredonia.
Swan ; township in Smith County; area, 36 square miles; population, 455.	{ Smith Center. Phillipsburg.
Swede ; creek, a left-hand branch of Salt Creek, in Osage County	Burlingame.
Swede ; creek, a right-hand branch of Big Blue River, in Riley County	Marysville.
Swede Creek ; hamlet in Cottage Hill Township, Marshall County	Marysville.
Swede Creek ; township in Riley County; area, 48 square miles; population, 774	Marysville.
Sweetwater ; canyon in Saline Township, Ellis County	Plainville.
Sweetwater ; creek, a left-hand tributary to Chikaskia River, in Kingman County.	{ Anthony. Kingman.
Sweetwater ; creek, a small tributary to Big Bull Creek, in Miami County	Olathe.
Swifton ; post village in Nemaha County.	
Swinburn ; post village in Shawnee County.	
Swing ; creek, left-hand branch of East Branch of Fall River, in Greenwood County	Enreka.
Switzler ; creek, a left-hand branch of Dragon Creek, in Osage County	Burlingame.
Sycamore ; post village in Montgomery County.	
Sycamore ; township in Butler County; area, 112 square miles; population, 489.	{ Eldorado. Cottonwood Falls.
Sycamore ; township in Montgomery County; area, 70 square miles; population, 1,264	Independence.
Sycamore ; creek, a left-hand branch of Big Cana Creek, in Chautauqua County	Sedan.
Sycamore ; creek, a left-hand branch of Elk River, in Montgomery County	Independence.
Sycamore Springs ; post-office in Sycamore Township, Butler County	Cottonwood Falls.
Sylvan Grove ; post village and station, on Union Pacific Railway, in Pleasant Township, Lincoln County	Beloit.
Sylvia ; city in Sylvia Township, Reno County, on Atchison, Topeka and Santa Fe Railway; population, 227; altitude, 1,741 feet	Kingman.
Sylvia ; township in Reno County; area, 36 square miles; population, 588	Kingman.

Atlas sheets.

- Syracuse**; city in Syracuse Township, county seat of Hamilton County; altitude, 3,227 feet; population, 421.
- Syracuse**; township in Hamilton County; area, 81 square miles; population, 651.
- Table**; mound in Sycamore Township, Montgomery County.... Independence.
- Table Rock**; creek, a right-hand branch of Saline River, in Lincoln County Salina.
- Tabor**; a hamlet in Fairview Township, Republic County Concordia.
- Tadpole**; creek, a left-hand branch of Otter Creek, in Greenwood County Eureka.
- Talleyrand**; township in Wilson County; area, 36 square miles; population, 571 Independence.
- Talmage**; post village and station on Atchison, Topeka and Santa Fe Railway, in Willowdale Township, Dickinson County; altitude, 1,211 feet Clay Center.
- Taloga**; township in Morton County; area, 243 square miles; population, 114.
- Taloga**; post village in Morton County.
- Talmo**; post village and station on Union Pacific Railway, in Grant Township, Republic County; altitude, 1,358 feet Concordia.
- Tampa**; post village on Chicago, Rock Island and Pacific Railway, in Marion County; altitude, 1,438 feet.
- Tannehill**; post village in Cowley County.
- Tate**; branch, a left-hand branch of Verdigris River, in Lyon County Emporia.
- Taw**; post village in Haskell County.
- Tay**; creek, a branch of East Fork of Ottawa Creek, in Franklin and Douglas counties Lawrence.
- Taylor**; creek, a left-hand branch of Dow Creek, in Lyon County Emporia.
- Taylor Rapids**; village in Nemaha Township, Nemaha County. Seneca.
- Tecumseh**; post village and station on Atchison, Topeka and Santa Fe Railway, in Tecumseh Township, Shawnee County; altitude, 862 feet Topeka.
- Tecumseh**; township in Shawnee County; area, 36 square miles; population, 1,046. { Topeka.
Burlingame.
- Tecumseh**; creek, a right-hand branch of Kansas River, in Shawnee County. { Burlingame.
Topeka.
- Tehama**; post village in Crawford Township, Cherokee County Joplin.
- Templin**; post-office and station on Chicago, Rock Island and Pacific Railway, in Washington Township, Wabaunsee County Eskridge.
- Tenmile**; station on Kansas City, Fort Scott and Gulf Railway, in Marysville Township, Miami County..... Olathe.
- Tenmile**; township in Miami County; area, 50 square miles; population, 1,000.
- Tenmile**; creek, a left-hand branch of Big Bull Creek, in Miami County Olathe.
- Tennyson**; creek, a left-hand branch of Marmaton River, in Bourbon County Iola.
- Terra Cotta**; post village and station on Union Pacific Railway, in Garfield Township, Ellsworth County; altitude, 1,469 feet Salina.

Atlas sheets.

Terry; township in Finney County; area, 217 square miles; population, 350.

Terryton; post village in Finney County.

Tescott; city in Morton Township, Ottawa County, on Union Pacific Railway; altitude, 1,298 feet; population, 222..... Minneapolis.

Tevis; post village in Shawnee County.

Thayer; city in Chetopa Township, Neosho County, on Atchison, Topeka and Santa Fe Railway; altitude, 1,045 feet; population, 544 (1890) Parsons.

Third; creek, a right-hand branch of Solomon River, in Cloud and Mitchell counties Minneapolis.

Thomas; northwestern county; organized, 1885: area, 1,080 square miles; population, 3,456; county seat, Colby; mean magnetic declination $11^{\circ} 30'$; rainfall, 18 inches; temperature, 53° .

The surface is an undulating, treeless plain, drained by the two forks of Sappa Creek and by Prairie Dog Creek. The elevation ranges from 2,700 to 3,400 feet. Little of the area is under cultivation. It is traversed by branches of the Chicago, Rock Island and Pacific and the Union Pacific railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Barrett.....	108	178
Hale.....	108	308
Kingery.....	144	236
Lacey.....	36	145
Morgan.....	108	761
Colby.....		467
Randall.....	216	658
Rovohl.....	108	302
Smith.....	36	191
Summers.....	144	278
Wendell.....	72	399

Thomas; station on Atchison, Topeka and Santa Fe Railway, in Empire Township, Ellsworth County; altitude, 1,787 feet. Ellsworth. Atlas sheets.

Thomas; township in Ellsworth County; area, 36 square miles; population, 259.

Thomas; township in Grant County; area, 108 square miles; population, 124.

Thomas; creek, a branch of Pottawatomie Creek, in Anderson County Garnett.

Thomas; creek, a right-hand tributary to Clark Creek, in Geary County Parkerville.

Thompson; a left-hand branch of Medicine Lodge River, in Kiowa County Coldwater.

Thompson; creek, a right-hand branch of Smoky Hill River, in Ellsworth County Ellsworth.

Thompsonville; post village in Jefferson County.

Thornton; post village in Rawlins County.

Thrall; post village in Greenwood County.

Threemile; creek, a left-hand branch of Kansas River, in Riley County Junction City.

Atlas sheets.

- Three Sisters**; hills in Wakarusa Township, Douglas County.. Lawrence.
- Throop**; post village in Washington County.
- Thunderbolt**; creek, a left-hand branch of Lightning Creek, in Crawford County..... Joplin.
- Thurman**; post-office in Matfield Township, Chase County Cottonwood Falls.
- Thurman**; creek, tributary to Cottonwood River, in Chase County Cottonwood Falls.
- Tilden**; township in Osborne County; area, 42 square miles; population, 478..... Osborne.
- Timber**; creek, a left-hand branch of Dutch Creek, in Cowley County Burden.
- Timberhill**; township in Bourbon County; area, 36 square miles; population, 991. { Fort Scott.
Mound City.
- Timken**; post village and station on Atchison, Topeka and Santa Fe Railway, in Banner Township, Rush County; altitude, 1,963 feet Larned.
- Tioga**; township in Neosho County; area, 48 square miles; population, 4,504..... Iola.
- Tipton**; post village in Pittsburg Township, Mitchell County.. Beloit.
- Tisdale**; post village on Missouri Pacific Railway, in Cowley County; altitude, 1,020 feet.
- Tisdale**; township in Cowley County; area, 30 square miles; population, 511..... Burden.
- Toledo**; post village in Toledo Township, Chase County..... Emporia.
- Toledo**; township in Chase County; area, 138 square miles; population, 860..... Emporia.
- Tomahawk**; creek, a tributary to Big Blue River, in Johnson County Olathe.
- Tonganoxie**; city in Tonganoxie Township, Leavenworth County, on Union Pacific and Kansas City and Northern railways; altitude, 829 feet; population, 967..... Oskaloosa.
- Tonganoxie**; township in Leavenworth County; area, 54 square miles; population, 2,389..... Oskaloosa.
- Tonganoxie**; creek, a right-hand branch of Big Stranger Creek, in Leavenworth County Oskaloosa.
- Tonovay**; post-office and station on Missouri Pacific Railway, in Bachelor Township, Greenwood County; altitude, 1,062 feet..... Eureka.
- Topeka**; city and county seat of Shawnee County; the capital of the State, situated upon both banks of Kansas River, and an important railroad center, being entered by Chicago, Rock Island and Pacific, Atchison, Topeka and Santa Fe, and Union Pacific railways; altitude, 880 feet (Union Pacific depot)..... Topeka.
- Topeka**; township in Shawnee County; area, 40 square miles; population, 5,174. { Topeka.
Burlingame.
- Topland**; post village in Sherman County.
- Toronto**; city in Toronto Township, Woodson County, on Kansas City, Fort Scott and Gulf and Missouri Pacific railways; altitude, 931 feet; population, 660 Fredonia.
- Toronto**; township in Woodson County; area, 36 square miles; population, 1,502..... Fredonia.
- Torrance**; post village and railway station in Windsor Township, Cowley County; altitude, 1,234 feet Burden.

Atlas sheets.

- Toulon**; station on Union Pacific Railway, in Big Creek Township, Ellis County; altitude, 1,994 feet **Hays.**
- Touron**; post village and station on Chicago, Rock Island and Pacific and Missouri Pacific railways, in Grove Township, Reno County **Kingman.**
- Towanda**; city in Towanda Township, Butler County; station on Missouri Pacific Railway; altitude, 1,278 feet; population, 156 (1890). } **Eldorado.**
Towanda; township in Butler County; area, 36 square miles; } **Wichita.**
 population, 647. } **Eldorado.**
Towanda; township in Phillips County; area, 30 square miles; } **Wichita.**
 population, 206. **Norton.**
- Tower Spring**; post village in Lincoln County.
- Townsend**; post village in Cowley County.
- Tradingpost**; post village in Linn County.
- Traer**; post village in Decatur County.
- Trail**; creek, a left-hand branch of Spillman Creek, in Lincoln County **Beliot.**
- Trego**; western county; organized, 1879; area, 900 square miles; population, 2,131; county seat, Wakeeney; mean magnetic declination, 11°; rainfall, 22 inches; temperature, 50. } **Hill.**
 } **Ellis.**

The surface is a treeless plain, somewhat broken by stream erosion, ranging in elevation from 2,000 to 2,500 feet. Only a small part of its area is under cultivation. It is drained by Smoky Hill River, which flows across it from west to east. It is traversed by a branch of the Union Pacific Railway.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Collyer	200	412
Franklin	100	117
Glencoe	36	135
Ogallah	144	430
Riverside	120	194
Wakeeney	180	637
Wakeeney		315
Wilcox	120	206

- Trego**; creek, a right-hand branch of Saline River, in Trego County **Hill.**
- Trent**; post village in Neosho County.
- Trenton**; station on Union Pacific Railway, in Elm Creek Township, Saline County; altitude, 1,229 feet **Salina.**
- Trenton**; township in Edwards County; area, 48 square miles; } **Kinsley.**
 population, 202. } **Spearville.**
- Tribune**; city in Tribune Township, county seat of Greeley County; population, 89; altitude, 3,612 feet.
- Tribune**; township in Greeley County; area, 224 square miles; population, 430.
- Troublesome**; creek, a small, left-hand branch of Neosho River, in Coffey County **Burlington.**
- Trousdale**; post village in Harvey County.

	Atlas sheets.
Trout ; creek, a right-hand branch of Cimarron River, in Clark County	Ashland.
Troy ; city in Center Township, county seat of Doniphan County. It is on the St. Joseph and Grand Island Railway; magnetic declination, 9° 35'; altitude, 1,088 feet; population, 910	Atchison.
Troy , township in Reno County; area, 36 square miles; population, 249	Kingman.
Troy Junction ; station on Missouri Pacific, Chicago, Rock Island and Pacific, and St. Joseph and Grand Island railways, in Center Township, Doniphan County	Atchison.
Tucker ; branch, a small tributary to Big Bull Creek, in Miami County	Olathe.
Tuggle ; branch, a small branch of Little Bull Creek, in Miami County	Olathe.
Tugua ; creek, a right-hand branch of Marais des Cygnes River, in Osage County	Burlington.
Tully ; post village in Rawlins County.	
Turkey ; creek, a left-hand branch of Medicine Lodge River, in Barber County	Medicine Lodge.
Turkey ; creek, a left-hand branch of Walnut River, in Butler County	Eldorado.
Turkey ; creek, a left-hand branch of Big Cana Creek, in Chautauqua County	Sedan.
Turkey ; creek, a left-hand branch of Spring River, in Cherokee County, Kansas, and Jasper County, Missouri	Joplin.
Turkey ; creek, a right-hand tributary to Neosho River, in Coffey and Woodson counties	Burlington.
Turkey ; creek, a right-hand branch of Smoky Hill River, in Dickinson County	Abilene.
Turkey ; creek, a right-hand branch of Smoky Hill River, in Ellsworth County	Ellsworth.
Turkey ; creek, a left-hand branch of Osage River, in Franklin and Miami counties	Lawrence.
Turkey ; creek, a right-hand branch of Kansas River, in Johnson County; length, 11 miles.	{ Kansas City. Olathe.
Turkey ; creek, a left-hand branch of Richland Creek, in Linn County	Mound City.
Turkey ; creek, a left-hand branch of Little Arkansas River, in McPherson and Harvey counties	Hutchinson.
Turkey ; creek, a right-hand branch of Solomon River, in Mitchell County	Beloit.
Turkey ; creek, a left-hand branch of Onion Creek, in Montgomery County	Independence.
Turkey ; creek, a right-hand branch of Neosho River, in Neosho County	Iola.
Turkey ; creek, a left-hand branch of Nemaha River, in Nemaha County	Seneca.
Turkey ; creek, a left-hand branch of Medicine Lodge River, in Pratt County.	{ Medicine Lodge. Pratt.
Turkey ; creek, a right-hand branch of Kansas River, in Wabaunsee County	Wamego.
Turkey ; creek, a right-hand branch of Neosho River, in Woodson and Coffey counties.	{ Fredonia. Burlington.
Turkey Creek ; township in Barber County; area, 48 square miles; population, 170.	{ Medicine Lodge. Coldwater.

Atlas sheets.

- Toulon**; station on Union Pacific Railway, in Big Creek Township, Ellis County; altitude, 1,994 feet Hays.
- Touron**; post village and station on Chicago, Rock Island and Pacific and Missouri Pacific railways, in Grove Township, Reno County Kingman.
- Towanda**; city in Towanda Township, Butler County; station on Missouri Pacific Railway; altitude, 1,278 feet; population, 156 (1890). } Eldorado.
Wichita.
- Towanda**; township in Butler County; area, 36 square miles; population, 647. } Eldorado.
Wichita.
- Towanda**; township in Phillips County; area, 30 square miles; population, 206 Norton.
- Tower Spring**; post village in Lincoln County.
- Townsend**; post village in Cowley County.
- Tradingpost**; post village in Linn County.
- Traer**; post village in Decatur County.
- Trail**; creek, a left-hand branch of Spillman Creek, in Lincoln County Beliot.
- Trego**; western county; organized, 1879; area, 900 square miles; population, 2,131; county seat, Wakeeney; mean magnetic declination, 11°; rainfall, 22 inches; temperature, 50°. } Hill.
Ellis.

The surface is a treeless plain, somewhat broken by stream erosion, ranging in elevation from 2,000 to 2,500 feet. Only a small part of its area is under cultivation. It is drained by Smoky Hill River, which flows across it from west to east. It is traversed by a branch of the Union Pacific Railway.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Collyer	200	412
Franklin	100	117
Glencoe	36	135
Ogallah	144	430
Riverside	120	194
Wakeeney	180	637
Wakeeney		315
Wilcox	120	206

- Trego**; creek, a right-hand branch of Saline River, in Trego County Atlas sheets.
Hill.
- Trent**; post village in Neosho County.
- Trenton**; station on Union Pacific Railway, in Elm Creek Township, Saline County; altitude, 1,229 feet Salina.
- Trenton**; township in Edwards County; area, 48 square miles; population, 202. } Kinsley.
Spearville.
- Tribune**; city in Tribune Township, county seat of Greeley County; population, 89; altitude, 3,612 feet.
- Tribune**; township in Greeley County; area, 224 square miles; population, 430.
- Troublesome**; creek, a small, left-hand branch of Neosho River, in Coffey County Burlington.
- Trousdale**; post village in Harvey County.

	Atlas sheets.
Trout ; creek, a right-hand branch of Cimarron River, in Clark County	Ashland.
Troy ; city in Center Township, county seat of Doniphan County. It is on the St. Joseph and Grand Island Railway; magnetic declination, 9° 35'; altitude, 1,088 feet; population, 910	Atchison.
Troy , township in Reno County; area, 36 square miles; population, 249	Kingman.
Troy Junction ; station on Missouri Pacific, Chicago, Rock Island and Pacific, and St. Joseph and Grand Island railways, in Center Township, Doniphan County	Atchison.
Tucker ; branch, a small tributary to Big Bull Creek, in Miami County	Olathe.
Tuggle ; branch, a small branch of Little Bull Creek, in Miami County	Olathe.
Tugua ; creek, a right-hand branch of Marais des Cygnes River, in Osage County	Burlington.
Tully ; post village in Rawlins County.	
Turkey ; creek, a left-hand branch of Medicine Lodge River, in Barber County	Medicine Lodge.
Turkey ; creek, a left-hand branch of Walnut River, in Butler County	Eldorado.
Turkey ; creek, a left-hand branch of Big Cana Creek, in Chattanooga County	Sedan.
Turkey ; creek, a left-hand branch of Spring River, in Cherokee County, Kansas, and Jasper County, Missouri	Joplin.
Turkey ; creek, a right-hand tributary to Neosho River, in Coffey and Woodson counties	Burlington.
Turkey ; creek, a right-hand branch of Smoky Hill River, in Dickinson County	Abilene.
Turkey ; creek, a right-hand branch of Smoky Hill River, in Ellsworth County	Ellsworth.
Turkey ; creek, a left-hand branch of Osage River, in Franklin and Miami counties	Lawrence.
Turkey ; creek, a right-hand branch of Kansas River, in Johnson County; length, 11 miles.	Kansas City. Olathe.
Turkey ; creek, a left-hand branch of Richland Creek, in Linn County	Mound City.
Turkey ; creek, a left-hand branch of Little Arkansas River, in McPherson and Harvey counties	Hutchinson.
Turkey ; creek, a right-hand branch of Solomon River, in Mitchell County	Beloit.
Turkey ; creek, a left-hand branch of Onion Creek, in Montgomery County	Independence.
Turkey ; creek, a right-hand branch of Neosho River, in Neosho County	Iola.
Turkey ; creek, a left-hand branch of Nemaha River, in Nemaha County	Seneca.
Turkey ; creek, a left-hand branch of Medicine Lodge River, in Pratt County.	Medicine Lodge. Pratt.
Turkey ; creek, a right-hand branch of Kansas River, in Waunsee County	Wamego.
Turkey ; creek, a right-hand branch of Neosho River, in Woodson and Coffey counties.	Fredonia. Burlington.
Turkey Creek ; township in Barber County; area, 48 square miles; population, 170.	Medicine Lodge. Coldwater.

	Atlas sheets.
Turkey Creek ; township in McPherson County; area, 36 square miles; population, 678	Hutchinson.
Turkey Creek ; township in Mitchell County; area, 36 square miles; population, 554	Beloit.
Turkville ; post village in Saline Township, Ellis County.....	Plainville.
Turner ; post-office and station on Atchison, Topeka and Santa Fe Railway, in Shawnee Township, Wyandotte County; altitude, 764 feet	Kansas City.
Turtle ; creek, a right-hand branch of Ninnescah River, in Sumner County.	{ Caldwell. Wellington.
Turtle ; creek, a small, left-hand branch of Smoky Hill River, in Wallace and Lyon counties.	
Tuttle ; creek, a right-hand branch of Big Blue River, in Riley County	Junction City.
Twelvemile ; creek, a right-hand branch of Saline River, in Lincoln County	Beloit.
Twin ; creek, a right-hand branch of South Fork Solomon River, in Osborne County	Osborne.
Twin Creek ; a hamlet in Winfield Township, Osborne County.	Osborne.
Twin Butte ; creek, a small, right-hand tributary to Smoky Hill River, in Wallace and Logan counties.	
Twin Falls ; post-office in Fall River Township, Greenwood County	Eureka.
Twin Grove ; township in Greenwood County; area, 57 square miles; population, 1,167.....	Eureka.
Twin Mound ; post village in Douglas County.	
Twin Mound ; township in Rooks County; area, 36 square miles; population, 382.....	Plainville.
Twin Mounds ; hills in Center Township, Wilson County, Kansas.....	Fredonia.
Twiss ; creek, a small left-hand tributary to Neosho River, in Coffey County	Burlington.
Tyner ; post village in Smith County.	
Tyro ; post village on Missouri Pacific Railway, in Fawn Creek Township, Montgomery County; altitude, 893 feet.....	Independence.
Udall ; station on Atchison, Topeka and Santa Fe Railway, in Ninnescah Township, Cowley County; altitude, 1,281 feet; population, 333	Wellington.
Ulysses ; city in Lincoln Township, county seat of Grant County; population, 37.	
Union ; post village in Osage County.	
Union ; township in Anderson County; area, 30 square miles; population, 529.....	Garnett.
Union ; township in Barton County; area, 36 square miles; population, 208	Russell.
Union ; township in Butler County; area, 60 square miles; population, 475.	{ Eldorado. Burden.
Union ; township in Clay County; area, 36 square miles; population, 483	Clay Center.
Union ; township in Dickinson County; area, 36 square miles; population, 536.	{ Abilene. Parkerville.
Union ; township in Doniphan County; area, 36 square miles; population, 907.....	Atchison.
Union ; township in Jefferson County; area, 40 square miles; population, 1,424	Oakalooza.

Atlas sheets.

- Union**; township in Kingman County; area, 36 square miles; population, 285..... Kingman.
- Union**; township in Kiowa County; area, 36 square miles; population, 25.
- Union**; township in McPherson County; area, 36 square miles; population, 594..... Salina.
- Union**; township in Pottawatomie County; area, 36 square miles; population, 517..... Wamego.
- Union**; township in Rawlins County; population, 100.
- Union**; township in Republic County; area, 36 square miles; population, 722..... Concordia.
- Union**; township in Rice County; area, 72 square miles; population, 1,286. { Lyons.
Hutchinson.
- Union**; township in Rush County; area, 54 square miles; population, 142..... Larned.
- Union**; township in Sedgwick County; area, 36 square miles; population, 812. { Cheney.
Wellington.
- Union**; township in Sheridan County; area, 36 square miles; population, 161.
- Union**; township in Sherman County; area, 54 square miles; population, 161.
- Union**; township in Stafford County; area, 36 square miles; population, 471..... Pratt.
- Union**; township in Washington County; area, 36 square miles; population, 520..... Washington.
- Union Center**; a hamlet in Union Center Township, Elk County. Sedan.
- Union Center**; township in Elk County; area, 144 square miles; population, 1,297. { Sedan.
Eureka.
Eldorado.
Burden.
- Uniontown**; city in Marion Township, Bourbon County, on Missouri Pacific Railway; altitude, 896 feet; population, 244 (1895)..... Fort Scott.
- Upola**; post village in Elk County; altitude, 989 feet.
- Urbana**; post village on Missouri, Kansas and Texas Railway, in Neosho County; altitude, 927 feet.
- Ursula**; township in Kiowa County; area, 68 square miles; population, 98.
- Utica**; post village on Missouri Pacific Railway, in Ness County; altitude, 2,614 feet.
- Utopia**; post village in Greenwood County.
- Valeda**; post village on Missouri Pacific Railway, in Labette County; altitude, 859 feet.
- Valencia**; post village on Chicago, Rock Island and Pacific Railway, in Shawnee County; altitude, 903 feet.
- Valentine**; post village in Harvey County.
- Valley**; township in Barber County; area, 36 square miles; population, 176. { Medicine Lodge.
Anthony.
- Valley**; township in Comanche County; area, 68 square miles; population, 74. { Coldwater.
Clark.
- Valley**; township in Ellsworth County; area, 36 square miles; population, 562..... Ellsworth.
- Valley**; township in Hodgeman County; area, 36 square miles; population, 127..... Ness City.
- Valley**; township in Kingman County; area, 36 square miles; population, 295..... Anthony.

Atlas sheets.

- Valley**; township in Kiowa County; area, 36 square miles; population, 52.
- Valley**; township in Lincoln County; area, 36 square miles; population, 203 Ellsworth.
- Valley**; township in Linn County; area, 47 square miles; population, 1,663 Mound City.
- Valley**; township in Miami County; area, 28 square miles; population, 1,030 Olathe.
- Valley**; township in Morris County; area, 36 square miles; population, 885 { Parkerville.
Eskridge.
- Valley**; township in Osborne County; area, 36 square miles; population, 312 Osborne.
- Valley**; township in Phillips County; area, 36 square miles; population, 266 Phillipsburg.
- Valley**; township in Pratt County; area, 45 square miles; population, 238 { Pratt.
Kingman.
- Valley**; township in Reno County; area, 60 square miles; population, 845 { Hutchinson.
Cheney.
- Valley**; township in Rice County; area, 30 square miles; population, 586 Lyons.
- Valley**; township in Scott County; area, 120 square miles; population, 159.
- Valley**; township in Sheridan County; area, 72 square miles; population, 152.
- Valley**; township in Smith County; area, 36 square miles; population, 428 { Smith Center.
Phillipsburg.
- Valley**; brook, a left-hand branch of Dragon Creek, in Osage County Burlingame.
- Valley Brook**; township in Osage County; area, 43 square miles; population, 1,760 Burlingame.
- Valley Center**; city in Valley Center Township, Sedgwick County, on St. Louis and San Francisco and Atchison, Topeka and Santa Fe railways; altitude, 1,348 feet; population, 319 Wichita.
- Valley Center**; township in Sedgwick County; area, 36 square miles; population, 927 Wichita.
- Valley Falls**; city in Delaware Township, Jefferson County, on Atchison, Topeka and Santa Fe, Union Pacific and Kansas City, and Northern railways; altitude, 913 feet; population, 1,155 Oskaloosa.
- Valverde**; township in Sumner County; area, 36 square miles; population, 502 Wellington.
- Vance**; station on Kansas City, Wichita and Northwestern Railway, in Quindaro Township, Wyandotte County; altitude, 1,062 feet Kansas City.
- Van Horn**; creek, a right-hand branch of Verdigris River, in Greenwood County Emporia.
- Varck**; post village in Cherokee County.
- Varner**; post village in Kingman County.
- Varvel**; creek, a small right-hand tributary to Neosho River, in Coffey County Burlington.
- Vassar**; creek, a small right-hand branch of Kansas River, in Shawnee County Topeka.
- Vassar**; post village on Missouri Pacific Railway, in Osage County; altitude, 1,099 feet.
- Vaughn**; post village in Rawlins County.

Atlas sheets.

- Vega**; post village in Wallace County.
- Vega**; township in Wallace County; area, 54 square miles; population, 64.
- Venango**; post village in Ellsworth County.
- Vera**; post village in Wabaunsee County.
- Verbeck**; post village in Barton County.
- Verdi**; post-office and railway station in Buckeye Township, Ottawa County; altitude, 1,201 feet Salina.
- Verdigria**; post village in Lyon County.
- Verdigria**; township in Wilson County; area, 58 square miles; population, 840 Fredonia.
- Verdigria**; river, a left-hand branch of Arkansas River, in Chase, Lyon, Greenwood, Woodson, Wilson, and Montgomery counties. { Emporia.
Eureka.
Fredonia.
Independence.
- Vermilion**; city in Noble Township, Marshall County, on Missouri Pacific Railway; altitude, 1,184 feet; population, 253.. Seneca.
- Vermilion**; township in Marshall County; area, 42 square miles; population, 1,987 Seneca.
- Vermilion**; creek, a right-hand branch of Black Vermilion River, in Marshall County Seneca.
- Vermilion**; river, a left-hand branch of Kansas River, in Pottawatomie County Wamego.
- Vernon**; post village in Woodson County
- Vernon**; township in Cowley County; area, 44 square miles; population, 779 Wellington.
- Vesper**; post-office in Vesper Township, Lincoln County, on Union Pacific Railway; altitude, 1,339 feet Beloit.
- Vesper**; township in Lincoln County; area, 36 square miles; population, 357 Beloit.
- Vesta**; township in Clark County; area, 120 square miles; population, 86. { Ashland.
Meade.
- Vicksburg**; township in Jewell County; area, 36 square miles; population, 565. { Mankato.
Concordia.
- Victor**; post village in Blue Hills Township, Mitchell County. Beloit.
- Victor**; township in Osborne County; area, 36 square miles; population, 328 Osborne.
- Victoria**; post village and station on Union Pacific Railway, in Victoria Township, Ellis County; altitude 1,919 feet..... Hays.
- Victoria**; township in Ellis County; area, 35 square miles; population, 386 Hays.
- Victoria**; township in Rice County; area, 48 square miles; population, 931. { Lyons.
Ellsworth.
- Vidette**; post village in Shawnee County.
- Vienna**; township in Pottawatomie County; area, 30 square miles; population, 317 Wamego.
- Vilas**; post village in Wilson County; altitude, 979 feet.....
- Village**; creek, a right-hand branch of Neosho River, in Neosho and Wilson counties. { Iola.
Fredonia.
- Vincent**; post office in Jackson Township, Osborne County... Osborne.
- Vine**; post village and station on Atchison, Topeka and Santa Fe Railway, in Ottawa Township, Ottawa County..... Clay Center.
- Vining**; city in Sherman Township, Clay County, on Union Pacific and Missouri Pacific railways; altitude, 1,273 feet; population, 77 Washington.

Atlas sheets.

- Vining**; city in Clifton Township, Washington County, on Union Pacific and Missouri Pacific railways; no post-office; altitude, 1,273 feet; population, 109 Washington.
- Vinita**; township in Kingman County; area, 36 square miles; population, 388 Cheney.
- Vinland**; post village and station on Atchison, Topeka and Santa Fe Railway, in Palmyra Township, Douglas County; altitude, 880 feet Lawrence.
- Vinton**; post village in Cowley County.
- Viola**; station on Atchison, Topeka and Santa Fe Railway, in Viola Township, Sedgwick County; altitude, 1,341 feet.... Caldwell.
- Viola**; township in Sedgwick County; area, 36 square miles; population, 454. } Cheney.
Caldwell.
- Violenta**; post village in Sheridan County.
- Virgil**; post-office in Lane Township, Greenwood County; altitude, 976 feet Eureka.
- Viroqua**; post village in Morton County.
- Vlets**; post village on Missouri Pacific Railway, in Marshall County; altitude, 1,154 feet.
- Volland**; post-office and station on Chicago, Rock Island and Pacific Railway, in Washington Township, Wabaunsee County; altitude, 1,181 Eskridge.
- Voltaire**; township in Sherman County; area, 144 square miles; population, 368.
- Voorhees**; township in Stevens County; area, 81 square miles; population, 81.
- Wabaunsee**; eastern county; organized, 1859; area, 804 square miles; population, 11,893; county seat, Alma; mean magnetic declination, 9° 20'; rainfall, 31 inches; temperature, 54°. } Wamego.
Junction City.
Parkerville.
Eskridge.

The surface is a rolling plain, somewhat eroded by streams, and treeless except in stream valleys. It is drained by Kansas River, which forms its northern boundary. The elevation ranges from 900 to 1,400 feet. Of its area over one-half is under cultivation, mainly in corn. It is traversed by branches of the Chicago, Rock Island and Pacific and the Atchison, Topeka and Santa Fe railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Alma	32	1,617
Alma		1,045
Farmer	66	364
Garfield	45	678
Kaw	40	647
Maple Hill	73	906
Mill Creek	75	664
Mission Creek	80	1,087
Newbury	80	1,375
Plumb		1,001
Rock Creek	66	750
Wabaunsee	66	1,069
Washington	64	396
Wilmington	108	1,340
Eskridge		560

Atlas sheets.

- Wabaunsee**; post village on Atchison, Topeka and Santa Fe and Chicago, Rock Island and Pacific railways, in Wabaunsee Township, Wabaunsee County; altitude, 1,020 feet. Wamego.
- Wabaunsee**; township in Wabaunsee County; area, 66 square miles; population, 1,069. Wamego.
- Waco**; post village in Sedgwick County.
- Waco**; township in Sedgwick County; area, 56 square miles; population, 1,025. Wichita.
- Wade**; post village in Miami County.
- Wade**; branch, a small branch of Big Bull Creek, in Miami County. Olathe.
- Wagstaff**; post village in Miami County.
- Wakarusa**; post village and station on Atchison, Topeka and Santa Fe Railway, in Williamsport Township, Shawnee County; altitude, 952 feet. Burlingame.
- Wakarusa**; township in Douglas County; area, 65 square miles; population, 2,223. Lawrence.
- Wakarusa**; creek, a right-hand branch of Kansas River, in Douglas and Shawnee counties. { Lawrence.
Burlingame.
- Wakeeney**; city in Wakeeney Township; county seat of Trego County, on Union Pacific Railway; altitude, 2,456 feet; population, 315. Hill.
- Wakeeney**; township in Trego County; area, 180 square miles; population, 637. { Hill.
Ellis.
- Wakefield**; city in Republican Township, Clay County, on Union Pacific Railway; altitude, 1,148 feet; population, 314. Clay Center.
- Wakeman**; post village in McPherson County.
- Waldeck**; post village on Chicago, Rock Island and Pacific Railway, in Marion County; altitude, 1,563 feet.
- Waldo**; city in Fairview Township, Russell County, on Union Pacific Railway; altitude, 1,720 feet; population, 32. Osborne.
- Walker**; post village and station on Union Pacific Railway, in Walker Township, Ellis County; altitude 1,941 feet. Hays.
- Walker**; township in Anderson County; area, 15 square miles; population, 709. Garnett.
- Walker**; township in Ellis County; area, 65 square miles; population, 555. Hays.
- Walker**; creek, a left-hand branch of Big Creek, in Ellis County. Hays.
- Walker**; mound, in Independence Township, Montgomery County. Independence.
- Walkertown**; post village in Bourbon County.
- Wallace**; western county; organized, 1888; area, 900 square miles; population, 1,690; county seat, Sharon Springs; mean magnetic declination, 11° 20'; rainfall, 13 inches; temperature, 53°. { Cheyenne.
Wells.

The surface is an undulating, treeless plain, drained by branches of Smoky Hill River. The elevation ranges from 3,300 to 3,800 feet. Little of it is under cultivation. It is crossed by a branch of the Union Pacific Railway.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Harrison	81	182
Morton	138	159
North	81	130
Sharon Springs	135	410
Stockholm	72	161
Wallace	189	368
Weekan	150	216
Vega	54	64

- Wallace**; city in Wallace Township, Wallace County, on Union Pacific Railway; magnetic declination, $11^{\circ} 40'$; altitude, 3,310 feet; population, 220 (1890). Atlas sheets.
- Wallace**; township in Wallace County; area, 189 square miles; population, 368.
- Wall Street**; post village in Linn County.
- Wallula**; post village on Kansas City, Wichita and Northwestern Railway, in Wyandotte County; altitude, 970 feet.
- Walnut**; city in Walnut Township, Crawford County, on Missouri, Kansas and Texas Railway; altitude, 940 feet; population, 554 Iola.
- Walnut**; township in Atchison County; area, 35 square miles; population, 1,123. { Atchison.
Oskaloosa.
- Walnut**; township in Barton County; area, 36 square miles; population, 488. { Russell.
Great Bend.
Hays.
Larned.
- Walnut**; township in Bourbon County; area, 60 square miles; population, 896. { Fort Scott.
Iola.
- Walnut**; township in Brown County; area, 63 square miles; population, 1,646 Hiawatha.
- Walnut**; township in Butler County; area, 36 square miles; population, 453. { Eldorado.
Wichita.
- Walnut**; township in Cowley County; area, 38 square miles; population, 5,533. { Burden.
Wellington.
- Walnut**; township in Crawford County; area 64 square miles; population, 2,049. { Fort Scott.
Iola.
- Walnut**; township in Jewell County; area, 36 square miles; population, 698 Mankato.
- Walnut**; township in Marshall County; area, 36 square miles; population, 631 Marysville.
- Walnut**; township in Pawnee County; area, 36 square miles; population, 196 Larned.
- Walnut**; township in Phillips County; area, 36 square miles; population, 280 Phillipsburg.
- Walnut**; township in Reno County; area, 36 square miles; population, 592 Lyons.
- Walnut**; township in Saline County; area, 42 square miles; population, 477. { Abilene.
Salina.
- Walnut**; creek, a small branch of Missouri River, in Atchison County; length, 5 miles Oskaloosa.
- Walnut**; creek, a right-hand branch of Medicine Lodge River, in Barber County Medicine Lodge.
- Walnut**; creek, a right-hand branch of Osage River, in Bates County Mound City.

Atlas sheets.

Walnut; creek, a left-hand branch of Ottawa Creek, in Franklin County.....	Lawrence.
Walnut; creek, a right-hand branch of Verdigris River, in Greenwood County.....	Fredonia. Eureka.
Walnut; creek, a left-hand branch of Sand Creek, in Kingman County.....	Anthony.
Walnut; creek, a small, left-hand branch of Grasshopper Creek, in Jefferson County.....	Oskaloosa.
Walnut; creek, a right-hand branch of Big Stranger Creek, in Leavenworth and Jefferson counties.....	Oskaloosa.
Walnut; creek, a left-hand branch of Little Blue River, in Marshall County.....	Marysville.
Walnut; creek, a right-hand branch of Middle Creek, in Miami County.....	Olathe. Mound City.
Walnut; creek, a small tributary to Osage River, in Miami County.....	Osage. Mound City.
Walnut; creek, a small, left-hand branch of Big Bull Creek, in Miami County.....	Olathe.
Walnut; creek, a right-hand branch of Solomon River, in Mitchell County.....	Beloit.
Walnut; creek, a left-hand branch of Arkansas River, in Ness, Rush, and Barton counties.....	Ness City. Larned. Great Bend.
Walnut; creek, a right-hand branch of Fancy Creek, in Riley County.....	Junction City.
Walnut; creek, a small, left-hand branch of Big Soldier Creek, in Shawnee and Jackson counties.....	Topeka.
Walnut; creek, a small, left-hand branch of Little Sandy Creek, in Wilson County.....	Fredonia.
Walnut; creek, a right-hand tributary to Missouri River.....	
Walnut; river, a large left-hand branch of Arkansas River, in Harvey, Butler, and Cowley counties.....	Wichita. Eldorado. Wellington.
Walnut Creek; township in Mitchell County; area, 36 square miles; population, 574.....	Beloit.
Walnut Grove; post village in Bloomfield Township, Mitchell County.....	Beloit.
Walnut Grove; township in Neosho County; area, 48 square miles; population, 1,043.....	Iola.
Walsburg; post village in Riley County.....	
Walton; city in Walton Township, Harvey County, on Atchison, Topeka and Santa Fe Railway; altitude, 1,536 feet; population, 186.....	Newton.
Walton; township in Harvey County; area, 36 square miles; population, 690.....	Newton.
Walton; township in Labette County; area, 36 square miles; population, 625.....	Parsons.
Walton; township in Rooks County; area, 72 square miles; population, 317.....	Plainville.
Walton; township in Sumner County; area, 54 square miles; population, 809.....	Wellington.
Wamego; city in Wamego Township, Pottawatomie County, on Union Pacific Railway; altitude, 989 feet; population, 1,808.....	Wamego.
Wamego; township in Pottawatomie County; area, 16 square miles; population, 2,222.....	Wamego.
Wanamaker; post village in Shawnee County.....	
Wano; township in Cheyenne County; area, 36 square miles; population, 513.....	

Atlas sheets.

Ward; post village in Wilson County.**Waring**; township in Ness County; area, 120 square miles;
population, 643 Ellis.**Warren**; post village in Cheyenne County.**Warren**; township in Morris County; area, 42 square miles;
population, 433 Eskridge.**Warrendale**; post village in Grant County.**Warwick**; post village on Missouri Pacific Railway, in Republic County; altitude, 1,538 feet.

Washington; northern county; organized, 1860; area, 900 square miles; population, 19,677; county seat, Washington; mean magnetic declination, 9° 20'; rainfall, 28 inches; temperature, 52°.

Washington.
Marysville.

The surface is mainly a treeless, rolling upland. The elevation ranges from 1,300 to 1,600 feet. It is an agricultural county, two-thirds of its area being under cultivation, mainly in corn. It is traversed by branches of the Burlington and Missouri River, the Missouri Pacific, and the St. Joseph and Grand Island railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Barnes.....	36	922
Barnes		354
Brantford	36	715
Charlestown	36	574
Clifton	36	976
Clifton		249
Vining		109
Coleman	36	529
Farmington	36	593
Franklin	36	813
Hollenberg		181
Grant	36	716
Greenleaf	36	1,268
Greenleaf		691
Haddam	36	877
Haddam		277
Hanover		1,657
Hanover	36	881
Highland	36	393
Independence	36	624
Lanham		43
Kimeo	36	601
Lincoln	36	560
Linn	36	915
Linn		185
Little Blue	36	704
Logan	36	432
Lowe	36	554
Mill Creek	36	698
Morrowville		100
Sheridan	36	657
Sherman	36	825
Palmer		200
Strawberry	36	635
Union	36	520
Mahaska		66
Washington	36	1,899
Washington		1,208

Atlas sheets.

- Washington**; city in Washington Township, county seat of Washington County, on Missouri Pacific Railway and Burlington and Missouri River Railway; magnetic declination, $10^{\circ} 20'$; altitude, 1,308 feet; population, 1,208..... Washington.
- Washington**; township in Anderson County; area, 34 square miles; population, 640 Garnett.
- Washington**; township in Brown County; area, 45 square miles; population, 1,354 Atchison.
- Washington**; township in Chautauqua County; area, 47 square miles; population, 693. { Sedan.
Independence.
- Washington**; township in Crawford County; area, 63 square miles; population, 3,328. { Joplin.
Fort Scott.
- Washington**; township in Doniphan County; area, 27 square miles; population, 2,075 Atchison.
- Washington**; township in Jackson County; area, 54 square miles; population, 766. { Wamego.
Topeka.
- Washington**; township in Jewell County; area, 36 square miles; population, 566 Mankato.
- Washington**; township in Nemaha County; area, 36 square miles; population, 953. { Hiawatha.
Seneca.
- Washington**; township in Republic County; area, 36 square miles; population, 662 Concordia.
- Washington**; township in Rice County; area, 72 square miles; population, 696. { Lyons.
Hutchinson.
- Washington**; township in Saline County; area, 36 square miles; population, 427 Salina.
- Washington**; township in Sherman County; area, 54 square miles; population, 166.
- Washington**; township in Smith County; area, 36 square miles; population, 430 Smith Center.
- Washington**; township in Wabaunsee County; area, 64 square miles; population, 396. { Wamego.
Eskridge.
Parkerville.
Junction City.
- Washington**; township in Washington County; area 36 square miles; population, 1,899 Washington.
- Washington**; branch, a left-hand branch of Verdigris River, in Wilson County Independence.
- Washington**; creek, a right-hand branch of Wakarusa Creek, in Douglas County Lawrence.
- Waterloo**; post-office in Galesburg Township, Kingman County. Cheney.
- Waterloo**; township in Lyon County; area, 59 square miles; population, 939.
- Waterville**; city in Waterville Township, Marshall County, on Missouri Pacific Railway; altitude, 1,171 feet; population, 565 Marysville.
- Waterville**; township in Marshall County; area, 36 square miles; population, 1,212 Marysville.
- Wathena**; city in Washington Township, Doniphan County; population, 763; altitude, 819 feet.
- Watson**; post village in Shawnee County.
- Wauneta**; post office and station on Missouri Pacific Railway, in Jefferson Township, in Chautauqua County; altitude, 942 feet Sedan.

Atlas sheets.

- Wellsford**; township in Kiowa County; area, 42 square miles; population, 372..... Kinsley.
- Wellsville**; city in Franklin Township, Franklin County, on Atchison, Topeka and Santa Fe Railway; altitude, 1,043 feet; population, 428..... Lawrence.
- Weltbote**; post village in Washington County.
- Wendell**; post village in Brown Township, Edwards County .. Kinsley.
- Wendell**; township in Thomas County; area, 72 square miles; population, 399.
- Wentworth**; creek, a left-hand tributary to Whitewater River, in Butler County. { Cottonwood Falls.
Eldorado.
Wichita.
- Weskan**; post village in Wallace County; altitude, 3,841 feet.
- Weekan**; township in Wallace County; area, 150 square miles; population, 216.
- West**; branch, a right-hand fork of Walnut River, in Butler County Eldorado.
- West**; branch, a left-hand branch of Lyons Creek, in Dickinson County Parkerville.
- West**; branch of Fall River, in Greenwood County Eureka.
- West**; branch of Turkey Creek, in McPherson County Hutchinson.
- West**; creek, a right-hand branch of Verdigris River, in Greenwood County Eureka.
- West**; fork, a right-hand branch of Neosho River, in Morris County Parkerville.
- West**; a small lake in Lake Township, Harvey County Cheney.
- West Beaver**; creek, a right-hand branch of Beaver Creek, in Smith County Smith Center.
- West Branch**; township in Marion County; area, 36 square miles; population, 821..... Newton
- West Branch Mill**; creek, a left-hand branch of Mill Creek, in Wabaunsee County. { Eskridge.
Wamego.
- West Branch Prairie**; creek in Sumner County Caldwell.
- West Cedar**; creek, a left-hand branch of Verdigris River, in Wilson County Fredonia.
- West Cherry**; township in Montgomery County; area, 40 square miles; population, 680 Independence.
- West Elkhorn**; creek, a left fork of Elkhorn Creek, in Lincoln County Ellsworth.
- West Emma**; creek, a right-hand branch of Emma Creek, in Harvey and McPherson counties. { Newton.
Wichita.
- Western**; township in Logan County; area, 108 square miles; population, 149.
- Western Park**; post-office in Union Center township, Elk County Eureka.
- West Fork**; right-hand branch of Dry Wood Creek, in Bourbon and Crawford counties Fort Scott.
- West Fork**; a right-hand branch of Wolf Creek, in Russell County Osborne.
- Westgate**; post village in Geary County.
- West Limestone**; creek, a left-hand branch of Hermes Creek, in Jewell County Mankato.
- West Marsh**; creek, a left-hand branch of Buffalo Creek, in Jewell and Republic counties. { Mankato.
Concordia.
- Westminster**; township in Reno County; area, 36 square miles; population, 414..... Kingman.

	Atlas sheets.
West Mission ; creek, a small left-hand branch of Kansas River, in Wyandotte County; length, 4 miles	Kansas City.
Westmoreland ; city in Rock Creek Township, county seat of Pottawatomie County; magnetic declination, 8° 50'; population, 445	Wamego.
Westola ; post village in Morton County.	
Weston ; post village in Geary County.	
Westphalia ; city in Westphalia Township, Anderson County, on Missouri Pacific Railway; population, 331	Garnett.
Westphalia ; township in Anderson County; area, 50 square miles; population, 1,179.	{ Garnett. Burlington.
West Pipe ; creek, a fork of Pipe Creek, in Ottawa and Cloud counties	Minneapolis.
West Plains ; (Plains, post-office), city in West Plains Township, Meade County, on Chicago, Rock Island and Pacific Railway; altitude, 2,766 feet; population, 28.	
West Plains ; township in Meade County; area, 134 square miles; population, 165	Meade.
West Salt ; creek, a right-hand branch of Salt Creek, in Republic County	Concordia.
West Sandy ; creek, a left-hand branch of Sandy Creek, in Harper County	Anthony.
West Shoo Fly ; creek, rises in Sumner County, Kansas, and flows south into Indian Territory	Wellington.
West Spring ; creek, a left-hand branch of Spring Creek, in Saline County	Salina.
West Twin ; creek, a right-hand branch of Saline River, in Lincoln County	Ellsworth.
West Union ; township in Norton County; area, 48 square miles; population, 303	Norton.
West Whitewater ; river, a right-hand branch of Whitewater River, in Butler and Harvey counties	Wichita.
Wetmore ; city in Wetmore Township, Nemaha County, on Missouri Pacific Railway; altitude, 1,089 feet; population, 458	Hiawatha.
Wetmore ; township in Nemaha County; area, 36 square miles; population, 1,138	Hiawatha.
Wheatland ; township in Barton County; area, 36 square miles; population, 315	Russell.
Wheatland ; township in Dickinson County; area, 36 square miles; population, 288	Abilene.
Wheatland ; township in Dickinson County; area, 36 square miles; population, 288	Abilene.
Wheatland ; township in Ellis County; area, 54 square miles; population, 573	Hays.
Wheatland ; township in Ford County; area, 72 square miles; population, 384	Spearville.
Wheaton ; post-office on Union Pacific Railway, in Clear Creek Township, Marshall County; altitude, 1,498 feet	Seneca.
Wheeler ; post village on Burlington and Missouri River Railway, in Cheyenne County; altitude, 3,481 feet.	
Wherry ; post village in Rice County; altitude, 1,600 feet.	
White ; city in Rolling Prairie Township, Morris County, on Chicago, Rock Island and Pacific and Missouri Pacific railways; altitude, 1,469 feet; population, 430	Parkerville.

Atlas sheets.

- White**; township in Kingman County; area, 42 square miles; population, 613..... Kingman.
- White**; creek, a right-hand branch of Buffalo Creek, in Cloud County Concordia.
- White Church**; post village and station on Kansas City, Wichita and Northwestern Railway, in Quindaro Township, Wyandotte County; altitude, 1,013 feet Kansas City.
- White Cloud**; city in Iowa Township, Doniphan County, on the Burlington and Missouri River Railway; it is situated on the bluffs on the right bank of Missouri River; altitude, 837 feet; population, 827 Atchison.
- White Mound**; township in Jewell County; area, 36 square miles; population, 685..... Mankato.
- White Rock**; post village in White Rock Township, Republic County Concordia.
- White Rock**; township in Lane County; area, 80 square miles; population, 186.
- White Rock**; township in Republic County; area, 36 square miles; population, 529..... Concordia.
- White Rock**; township in Smith County; area, 36 square miles; population, 545 Smith Center.
- White Rock**; creek, a right-hand branch of Republican River, in Smith and Jewell counties. { Smith Center.
Mankato.
Concordia.
- Whitewater**; city in Milton Township, Butler County, on Chicago, Rock Island and Pacific Railway; altitude, 1,386 feet; population, 209.
- Whitewater**; creek, a right-hand branch of West Whitewater River, in Butler and Sedgwick counties Wichita.
- Whitewater**; river, a right-hand branch of Walnut River, in Butler County..... Wichita.
- Whitewoman**; township in Wichita County; area, 180 square miles; population, 145.
- Whitfield**; post village in Shawnee County.
- Whiting**; city in Whiting Township, Jackson County, on Chicago, Rock Island and Pacific and Missouri Pacific railways; altitude, 1,104 feet; population, 404 Hiawatha.
- Whiting**; township in Jackson County; area, 36 square miles; population, 1,129..... Hiawatha.
- Whitman**; post village in Sumner County.
- Whittaker**; post village in Miami County.
- Wichita**; western county; organized, 1886; area, 720 square miles; population, 1,431; county seat, Leoti; mean magnetic declination, 11° 30'; rainfall, 15 inches; temperature, 54°.

The surface is an undulating, treeless plain, but a small portion of it being under cultivation. The elevation ranges from 3,000 to 3,500 feet. It is traversed by branches of the Missouri Pacific and the Atchison, Topeka and Santa Fe Railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Beaver	72	187
Edwards	216	407
Coronado	108	184
Leoti	108	296
Sims	72	155
Sumner	36	33
Whitewoman	180	145
Yates		24

- Wichita**; city in Wichita Township, county seat of Sedgwick County; magnetic declination, 10° 10'; altitude, 1,300 feet; population, 19,892; it is situated on both banks of Arkansas River and is a railroad center of great importance, being entered by most of the railroad systems of the State..... *Atlas sheets.* Wichita.
- Wichita**; township in Sedgwick County; area, 34 square miles; population, 20,531..... Wichita.
- Wichita Heights**; post village in Sedgwick County; altitude, 1,331 feet.
- Widerange**; post village in Ottawa County.
- Wilburn**; post village in Wilburn Township, Ford County..... Meade.
- Wilburn**; township in Ford County; area, 72 square miles; { Dodge.
population, 146. { Meade.
- Wilcox**; township in Trego County; area, 120 square miles; population, 206.
- Wild Cat**; township in Elk County; area, 53 square miles; population, 1,342..... Sedan.
- Wild Cat**; township in Riley County; area, 50 square miles; population, 525..... Junction City.
- Wild Cat**; creek, a left-hand branch of Grouse Creek, in Cowley County..... Burden.
- Wild Cat**; creek, a right-hand branch of Elk River, in Elk County..... Sedan.
- Wild Cat**; creek, a right-hand branch of Bluff Creek, in Harper County..... Caldwell.
- Wild Cat**; creek, a left-hand branch of east fork of Neosho River, in Morris County..... Eskridge.
- Wild Cat**; creek, a left-hand branch of Nemaha River, in Nemaha County..... Seneca.
- Wild Cat**; creek, a left-hand branch of Kansas River, in Riley County..... Junction City.
- Wilder**; post-office and station on Atchison, Topeka and Santa Fe Railway, in Monticello Township, Johnson County; altitude, 772 feet..... Kansas City.
- Wild Horse**; township in Graham County; area, 50 square miles; population, 255..... Hill.
- Wild Horse**; creek, a small left-hand branch of Grasshopper Creek, in Jefferson County..... Oskaloosa.
- Wild Horse**; creek, a left-hand branch of Chikaskia River, in { Anthony.
Kingman County. { Kingman.

Atlas sheets.

Wild Horse ; creek, a small right-hand tributary to Big Stranger Creek, in Leavenworth and Jefferson counties.....	Oskaloosa.
Wild Horse ; creek, in Ness County.....	Ellis.
Wild Horse ; creek, a right-hand branch of South Fork Solomon River, in Graham County.....	Hill.
Wild Horse ; creek, a left-hand branch of Rattlesnake Creek, in Stafford County.....	Great Bend.
Wildon Draw ; in Glencoe Township, Trego County.....	Ellis.
Wild Run ; creek, a right-hand branch of south fork of Ninnecah River, in Kingman County.....	Kingman.
Willard ; post village on Chicago, Rock Island and Pacific Railway, in Shawnee County; altitude, 917 feet.	
Williamsburg ; village in Williamsburg Township, Franklin County, on Atchison, Topeka and Santa Fe Railway; population, 502 (1890); altitude, 1,144 feet.....	Garnett.
Williamsburg ; township in Franklin County; area, 60 square miles; population, 1,310.	Garnett. Lawrence. Burlington. Burlingame.
William ; butte, a hill in Custer Township, Mitchell County ..	Beloit.
Williamsport ; township in Shawnee County; area, 42 square miles; population, 673.....	Burlingame.
Williamstown ; post village on Union Pacific Railway, in Rural Township, Jefferson County; altitude, 853 feet.....	Oskaloosa.
Willis ; city in Mission Township, Brown County; a station on Missouri Pacific Railway; altitude, 1,148 feet; population, 193	Hiawatha.
Willow ; creek, a right-hand branch of Spring River, in Cherokee County	Joplin.
Willow ; creek, a tributary of West Creek, in Greenwood County.	Eureka. Emporia.
Willow ; creek, a right-hand branch of Fall River, in Wilson county.....	Fredonia.
Willowdale ; township in Dickinson County; area, 36 square miles; population, 569.	Abilene. Clay Center.
Willow Spring ; township in Douglas County; area, 54 square miles; population, 1,129.....	Lawrence.
Willow Springs ; post village in Douglas County.	
Wilmington ; post village in Wilmington Township, Wabaunsee County	Burlingame.
Wilmington ; township in Wabaunsee County; area, 108 square miles; population, 1,340.	Eskridge. Burlingame.
Wilmore ; post village and station on Atchison, Topeka and Santa Fe Railway, in Powell Township, Comanche County; altitude, 2,019 feet.....	Coldwater.
Willmot ; post village and railroad station in Richland Township, Cowley County.....	Burden.
Wilsey ; city in Elm Creek Township, Morris County, on Missouri Pacific Railway; altitude, 1,504 feet; population, 210 (1895).....	Parkerville.

Atlas sheets.

Wilson; southeastern county; organized, 1865; area, 576 square miles; population, 15,036; county seat, Fredonia; mean magnetic declination, 9° 20'; rainfall, 32 inches; temperature, 55°.

Eureka.
Fredonia.
Sedan.
Independence.

The surface is an undulating plain, drained by Verdigris River, which crosses the county from northwest to southeast. It is treeless, except in the stream valleys. The elevation ranges from 800 to 1,100 feet. It is an agricultural county, three-fifths of its area being under cultivation, mainly in corn. It is traversed by branches of the St. Louis and San Francisco and the Atchison, Topeka and Santa Fe railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Cedar	36	968
Altoona		308
Center	42	2,441
Fredonia		1,664
Chetopa	36	719
Clifton	48	887
Colfax	48	916
Duck Creek	36	477
Fall River	50	1,111
Guilford	36	660
Neodesha	36	2,842
Neodesha		2,019
Newark	36	773
Pleasant Valley	48	845
Prairie	30	420
Talleyrand	36	571
Verdigris	58	840
Webster		566

Wilson; city in Wilson Township, Ellsworth County, on Union Pacific Railway; altitude, 1,687 feet; population, 763 Atlas sheets. Ellsworth.

Wilson; township in Ellsworth County; area, 36 square miles; population, 1,238 Ellsworth.

Wilson; township in Lane County; area, 80 square miles; population, 193.

Wilson; township in Marion County; area, 36 square miles; population, 826 Newton.

Wilson; township in Rice County; area, 36 square miles; population, 503.

Wilson; branch, a right-hand branch of Rock Creek, in Pottawatomie County Wamego.

Wilson; creek, a left-hand branch of Smoky Hill River, in Ellsworth County Ellsworth.

Wilson; post village in Labette County; altitude, 918 feet.

Winchester; city in Jefferson Township, Jefferson County, on Union Pacific Railway; altitude, 1,160 feet Oskaloosa.

Windom; city in Castle Township, McPherson County; population, 128 (1895) Hutchinson.

Windsor; township in Cowley County; area, 90 square miles; population, 859 Burden.

Atlas sheets.

Winfield ; city in Walnut Township, county seat of Cowley County; magnetic declination, 9°; an important railroad center, being entered by Atchison, Topeka and Santa Fe, Missouri Pacific, and St. Louis and San Francisco railways; altitude, 1,123 feet; population, 4,610.	Burden. Wellington.
Winfield ; township in Osborne County; area, 36 square miles; population, 259	Osborne.
Wingfield ; township in Geary County; area, 48 square miles; population, 436.	
Wingate ; railroad station in Union Township, Butler County.	Burden.
Winkler ; post village in Riley County.	
Winneshiek ; post village in McPherson County.	
Winona ; post village in Logan County on Union Pacific Railroad; altitude, 3,322 feet.	
Winona ; township in Logan County; area, 108 square miles; population, 258.	
Winser ; creek, a left-hand branch of Slate Creek, in Sumner County	Wellington.
Winterset ; township in Russell County; area, 36 square miles; population, 318.	Russell. Hays.
Wise ; post village in Allen County.	
Wittrup ; post village in Hodgeman County.	
Wolf ; creek, a left-hand branch of Middle Cana Creek, in Chautauqua County	Sedan.
Wolf ; creek, a right-hand branch of Republican River, in Cloud County	Concordia.
Wolf ; creek, a left-hand branch of Neosho River, in Coffey County	Burlington.
Wolf ; creek, a branch of the Missouri River, in Doniphan and Brown counties; length, 34 miles	Atchison.
Wolf ; creek, a branch of Big Blue River, in Johnson County..	Olathe.
Wolf ; creek, a left-hand branch of Little Arkansas River, in McPherson County	Hutchinson.
Wolf ; creek, a right-hand branch of Smoky Hill River, in McPherson and Ellsworth counties	Ellsworth. Salina.
Wolf ; creek, a small tributary to Big Bull Creek, in Miami County	Olathe.
Wolf ; creek, a left-hand branch of North Fork Solomon River, in Phillips County	Phillipsburg.
Wolf ; creek, a right-hand branch of Smoky Hill River, in Rice, Ellsworth, and McPherson counties.	Hutchinson. Salina.
Wolf ; creek, a left-hand branch of Saline River, in Russell, Lincoln, and Osborne counties	Osborne.
Wolf ; creek, a right-hand branch of Bluff Creek, in Sumner County	Caldwell.
Wolf ; creek, a left-hand branch of Kansas River, in Wyandotte and Leavenworth counties; length, 10 miles	Kansas City.
Wolfley ; creek, a right fork of Mud Creek, in Brown and Nemaha counties	Hiawatha.
Wolf River ; township in Doniphan County; area, 68 square miles; population, 2,326	Atchison.
Wolverine ; creek, a left-hand branch of Marmaton River, in Bourbon County	Fort Scott.
Womer ; post-office in Pawnee Township, Smith County	Smith Center.
Wonderly ; post village in Saline County.	

Atlas sheets.

- Wonsevu**; post village in Chase County.
- Woodbine**; in Union Township, Dickinson County, on Chicago, Rock Island and Pacific Railway; altitude, 1,255 feet..... **Parkerville.**
- Woodland**; post village in Bourbon County.
- Woodlawn**; post village in Nemaha County.
- Woodruff**; post village and station on Burlington and Missouri River Railway, in Grant Township, Phillips County; altitude, 2,004 feet..... **Phillipsburg.**
- Woodruff**; branch, a left-hand branch of Buffalo Creek, in Wilson County..... **Fredonia.**
- Woodsdale**; city in Woodsdale Township, Stevens County; population, 68 (1890).
- Woodsdale**; township in Stevens County; area, 54 square miles; population, 74.
- Woodson**; southeastern county; organized, 1855; area, 504 square miles; population, 9,659; county seat, Yates Center; mean magnetic declination, 9° 55'; rainfall, 33 inches; temperature, 54°.

The surface is a rolling plain, treeless, except in stream valleys. The elevation ranges from 900 to 1,100 feet. It is an agricultural county, one-half its area being under cultivation, mainly in corn. It is traversed by branches of the Missouri, Kansas and Texas, the St Louis, Fort Scott and Wichita Railways.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Belmont	48	656
Center	62	2,043
Yates Center		1,556
Eminence	36	554
Everett	54	819
Liberty	58	860
Neosho Falls	36	1,517
Neosho Falls		718
North	64	445
Owl Creek	48	758
Perry	36	505
Toronto	62	1,502
Toronto		660

- Woodston**; post village and station on Missouri Pacific Railway, in Lowell Township, Rooks County; altitude, 1,711 feet..... **Plainville.**
- Woodville**; a hamlet in Paradise Township, Russell County... **Russell.**
- Worden**; post village in Douglas County.
- Wreford**; post village on Missouri, Kansas and Texas Railway, in Geary County; altitude, 1,085 feet.
- Wright**; post village in Ford County.
- Wright**; creek, a right-hand branch of Smoky Hill River, in Russell County..... **Russell.**
- Wright**; creek, a left-hand branch of Neosho River, in Lyon County..... **Eskridge.**

Wyandotte; northeastern county; organized, 1859; area, 153 square miles; population, 58,612; county seat, Kansas City; mean magnetic declination, 8° 50'; rainfall, 35 inches; temperature, 53°..... Kansas City.

Kansas City.

Townships and cities.	Area.	Population.
	<i>Sq. miles.</i>	
Delaware	34	1, 968
Prairie	29	1, 025
Quindaro	25	1, 796
Shawnee	23	10, 360
Argentine		5, 960
Rosedale		2, 096
Wyandotte	29	2, 700
Kansas City		40, 763

Wyandotte; township in Wyandotte County; area, 29 square miles; population, 2,700..... Atlas sheets. Kansas City.

Atlas sheets.

Seneca.

Fort Scott.

Yates Center; city in Center Township, county seat of Woodson County, on Missouri Pacific, and Atchison, Topeka and Santa Fe railways; magnetic declination, 9° 00'; altitude, 1,099 feet; population, 1,557..... **Fredonia**.

Yockley; creek, a left-hand branch of Solomon River, in Cloud and Ottawa counties..... Minneapolis.

Yoder; post-office and station on Missouri Pacific Railway, in Haven Township, Reno County..... Cheney.

York; township in Stafford County; area, 36 square miles; population, 457. { Pratt.
{ Kingman.

9

Osborne.

Yuma; station on Missouri Pacific Railway, in Buffalo Town-
ship, Cloud County; altitude, 1,379 feet Concordia.

Zarah; post-office and station, on Atchison, Topeka and Santa Fe Railway, in Monticello Township, Johnson County; altitude, 797 feet..... Kansas City.

Zeandale; post-office and station on Atchison, Topeka and Santa Fe, and Chicago, Rock Island and Pacific railways, in Zeandale Township, Riley County; altitude, 997 feet Wamego.

Atlas sheets.

- Zeandale**; township in Riley County; area, 60 square miles;
population, 617..... Wamego.
- Zeka**; creek, a right hand branch of Little Blue River, in
Washington County..... Marysville.
- Zella**; post village in Stevens County.
- Zionville**; post village in Grant County.
- Zurich**; a hamlet in Logan Township, Rooks County, on Union
Pacific Railway; altitude, 2,212 feet..... Plainville.
- Zyba**; post village on Chicago, Rock Island and Pacific Rail-
way, in Sumner County; altitude, 1,232 feet.

ADVERTISEMENT.

[Bulletin 154.]

The statute approved March 3, 1879, establishing the United States Geological Survey, contains the following provisions:

"The publications of the Geological Survey shall consist of the annual report of operations, geological and economic maps illustrating the resources and classification of the lands, and reports upon general and economic geology and paleontology. The annual report of operations of the Geological Survey shall accompany the annual report of the Secretary of the Interior. All special memoirs and reports of said Survey shall be issued in uniform quarto series if deemed necessary by the Director, but otherwise in ordinary octavos. Three thousand copies of each shall be published for scientific exchanges and for sale at the price of publication; and all literary and cartographic materials received in exchange shall be the property of the United States and form a part of the library of the organization; and the money resulting from the sale of such publications shall be covered into the Treasury of the United States."

Except in those cases in which an extra number of any special memoir or report has been supplied to the Survey by resolution of Congress or has been ordered by the Secretary of the Interior, this office has no copies for gratuitous distribution.

ANNUAL REPORTS.

I. First Annual Report of the United States Geological Survey, by Clarence King. 1880. 8°. 79 pp. 1 map.—A preliminary report describing plan of organization and publications.

II. Second Annual Report of the United States Geological Survey, 1880-'81, by J. W. Powell. 1882. 8°. 1v, 588 pp. 62 pl. 1 map.

III. Third Annual Report of the United States Geological Survey, 1881-'82, by J. W. Powell. 1883. 8°. xviii, 564 pp. 67 pl. and maps.

IV. Fourth Annual Report of the United States Geological Survey, 1882-'83, by J. W. Powell. 1884. 8°. xxxii, 473 pp. 85 pl. and maps.

V. Fifth Annual Report of the United States Geological Survey, 1883-'84, by J. W. Powell. 1885. 8°. xxxvi, 469 pp. 58 pl. and maps.

VI. Sixth Annual Report of the United States Geological Survey, 1884-'85, by J. W. Powell. 1885. 8°. xxix, 570 pp. 65 pl. and maps.

VII. Seventh Annual Report of the United States Geological Survey, 1885-'86, by J. W. Powell. 1888. 8°. xx, 656 pp. 71 pl. and maps.

VIII. Eighth Annual Report of the United States Geological Survey, 1886-'87, by J. W. Powell. 1889. 8°. 2 pt. xix, 474, xii pp. 53 pl. and maps; 1 p. l., 475-1063 pp. 54-76 pl. and maps.

IX. Ninth Annual Report of the United States Geological Survey, 1887-'88, by J. W. Powell. 1889. 8°. xiii, 717 pp. 88 pl. and maps.

X. Tenth Annual Report of the United States Geological Survey, 1888-'89, by J. W. Powell. 1890. 8°. 2 pt. xv, 774 pp. 98 pl. and maps; viii, 123 pp.

XI. Eleventh Annual Report of the United States Geological Survey, 1889-'90, by J. W. Powell. 1891. 8°. 2 pt. xv, 757 pp. 66 pl. and maps; ix, 351 pp. 30 pl.

XII. Twelfth Annual Report of the United States Geological Survey, 1890-'91, by J. W. Powell. 1891. 8°. 2 pt. xiii, 675 pp. 53 pl. and maps; xviii, 576 pp. 146 pl. and maps.

XIII. Thirteenth Annual Report of the United States Geological Survey, 1891-'92, by J. W. Powell. 1893. 8°. 3 pt. vii, 240 pp. 2 maps; x, 372 pp. 105 pl. and maps; xi, 480 pp. 77 pl. and maps.

XIV. Fourteenth Annual Report of the United States Geological Survey, 1892-'93, by J. W. Powell. 1893. 8°. 2 pt. vi, 321 pp. 1 pl.; xx, 597 pp. 74 pl.

XV. Fifteenth Annual Report of the United States Geological Survey, 1893-'94, by J. W. Powell. 1895. 8°. xiv, 755 pp. 48 pl.

XVI. Sixteenth Annual Report of the United States Geological Survey, 1894-'95, Charles D. Walcott, Director. 1895. (Part I, 1895.) 8°. 4 pt. xxii, 910 pp., 117 pl. and maps; xix, 598 pp., 43 pl. and maps; xv, 646 pp., 23 pl.; xix, 735 pp., 6 pl.

XVII. Seventeenth Annual Report of the United States Geological Survey, 1895-'96, Charles D. Walcott, Director. 1896. 8°. 3 pt. in 4 vol. xxii, 1076 pp., 67 pl. and maps; xxv, 864 pp., 113 pl. and maps; xxiii, 542 pp., 8 pl. and maps; iii, 543-1058 pp., 9-13 pl.

XVIII. Eighteenth Annual Report of the United States Geological Survey, 1896-'97, Charles D. Walcott, Director. 1897. (Parts II and III, 1898.) 8°. 5 pt. in 6 vol. 440 pp., 4 pl. and maps; v, 653 pp., 105 pl. and maps; v, 861 pp., 118 pl. and maps; x, 756 pp., 102 pl. and maps; xii, 642 pp., 1 pl.; 643-1400 pp.

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By act of Congress approved June 11, 1896, the following provision was made:

"Provided, That hereafter the reports of the Geological Survey in relation to the gauging of streams and to the methods of utilizing the water resources may be printed in octavo form, not to exceed one hundred pages in length and five thousand copies in number; one thousand copies of which shall be for the official use of the Geological Survey, one thousand five hundred copies shall be delivered to the Senate, and two thousand five hundred copies shall be delivered to the House of Representatives, for distribution."

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TOPOGRAPHIC MAP OF THE UNITED STATES.

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GEOLOGIC ATLAS OF THE UNITED STATES.

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5	Sacramento	California.	121°-121° 30'	38° 30'-39°	932	25
6	Chattanooga	Tennessee	85°-85° 30'	35°-35° 30'	975	25
7	Pikes Peak *	Colorado..	105°-105° 30'	38° 30'-39°	932	25
8	Sewanee	Tennessee	85° 30'-86°	35°-35° 30'	975	25
9	Anthracite-Crested Butte.	Colorado..	106° 45'-107° 15'	38° 45'-39°	465	50
10	Harpers Ferry	Virginia..	77° 30'-78°	39°-39° 30'	925	25
11	Jackson	West Va..	120° 30'-121°	38°-38° 30'	938	25
12	Estillville	Maryland.	82° 30'-83°	36° 30'-37°	957	25
13	Fredericksburg	Virginia..	77°-77° 30'	38°-38° 30'	938	25
14	Staunton	Virginia..	79°-79° 30'	38°-38° 30'	938	25
15	Lassen Peak	West Va..	121°-122°	40°-41°	3,634	25
16	Knoxville	California.	83° 30'-84°	35° 30'-36°	925	25
17	Marysville	Tennessee	121° 30'-122°	39°-39° 30'	925	25
18	Smartsville	N. Carolina	121°-121° 30'	39°-39° 30'	925	25
19	Stevenson	California.	85° 30'-86°	34° 30'-35°	980	25
20	Cleveland	Alabama..	84° 30'-85°	35°-35° 30'	975	25
21	Pikeville	Tennessee	85°-85° 30'	35° 30'-36°	969	25
22	McMinnville	Tennessee	85° 30'-86°	35° 30'-36°	969	25
23	Nomini	Tennessee	76° 30'-77°	38°-38° 30'	938	25
24	Three Forks	Maryland.	111°-112°	45°-46°	3,354	50

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28	Piedmont	Tennessee }	79°-79° 30'	39°-39° 30'	925	25
		Virginia ..				
		Maryland ..				
		West Va. }				
29	Nevada City:					
	Nevada City ..					
	Grass Valley ..					
	Banner Hill ..					
30	Yellowstone National Park:	California. {	121° 00' 25"-121° 03' 45"	39° 13' 50"-39° 17' 16"	11.65	50
	Gallatin		121° 01' 35"-121° 05' 04"	39° 10' 22"-39° 13' 50"	12.09	
	Canyon		120° 57' 05"-121° 00' 25"	39° 15' 50"-39° 17' 16"	11.65	
	Shoshone					
	Lake	Wyoming.	110°-111°	44°-45°	3,412	75
31	Pyramid Peak ..	California.	120°-120° 30'	38° 30'-39°	932	25
32	Franklin	Virginia ..	79°-79° 30'	38° 30'-39°	932	25
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33	Briceville	Tennessee	84°-84° 30'	36°-36° 30'	963	25
34	Buckhannon	West Va. }	80°-80° 30'	38° 30'-39°	932	25
35	Gadsden	Alabama	86°-86° 30'	34°-34° 30'	966	25
36	Pueblo	Colorado ..	104° 30'-105°	38°-38° 30'	938	50
37	Downsville	California.	120° 30'-121°	39° 30'-40°	918	25
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39	Truckee	California.	120°-120° 30'	39°-39° 30'	925	25
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Mineral Resources of the United States, 1893, by David T. Day. 1894. 8°. viii, 810 pp. Price 50 cents.

On March 2, 1895, the following provision was included in an act of Congress:

"Provided, That hereafter the report of the mineral resources of the United States shall be issued as a part of the report of the Director of the Geological Survey."

In compliance with this legislation the following reports have been published:

Mineral Resources of the United States, 1894, David T. Day, Chief of Division. 1895. 8°. xv, 646 pp., 23 pl.; xix, 735 pp., 6 pl. Being Parts III and IV of the Sixteenth Annual Report.

Mineral Resources of the United States, 1895, David T. Day, Chief of Division. 1896. 8°. xxiii, 542 pp., 8 pl. and maps; iii, 543-1058 pp., 9-13 pl. Being Part III (in 2 vols.) of the Seventeenth Annual Report.

Mineral Resources of the United States, 1896, David T. Day, Chief of Division. 1897. 8°. xii, 642 pp., 1 pl.; 643-1400 pp. Being Part V (in 2 vols.) of the Eighteenth Annual Report.

The report on the mineral resources for the calendar year 1897 will form a part of the Nineteenth Annual Report of the Survey.

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THE DIRECTOR,

UNITED STATES GEOLOGICAL SURVEY,

WASHINGTON, D. C.

WASHINGTON, D. C., August, 1896.

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3	Placerville	Tennessee	120° 30'-121°	38° 30'-39°	932	25
4	Kingston	Tennessee	84° 30'-85°	35° 30'-36°	969	25
5	Sacramento	California.	121°-121° 30'	38° 30'-39°	932	25
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OF THE

UNITED STATES

GEOLOGICAL SURVEY

No. 155

EARTHQUAKES IN CALIFORNIA IN 1896 AND 1897.—PERRINE

WASHINGTON
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1898



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BULLETIN

OF THE

UNITED STATES

GEOLOGICAL SURVEY

No. 155



WASHINGTON
GOVERNMENT PRINTING OFFICE
1898



UNITED STATES GEOLOGICAL SURVEY

CHARLES D. WALCOTT, DIRECTOR

EARTHQUAKES IN CALIFORNIA

IN

1896 and 1897

BY

CHARLES D. PERRINE

ASSISTANT ASTRONOMER IN CHARGE OF EARTHQUAKE OBSERVATIONS
AT THE LICK OBSERVATORY

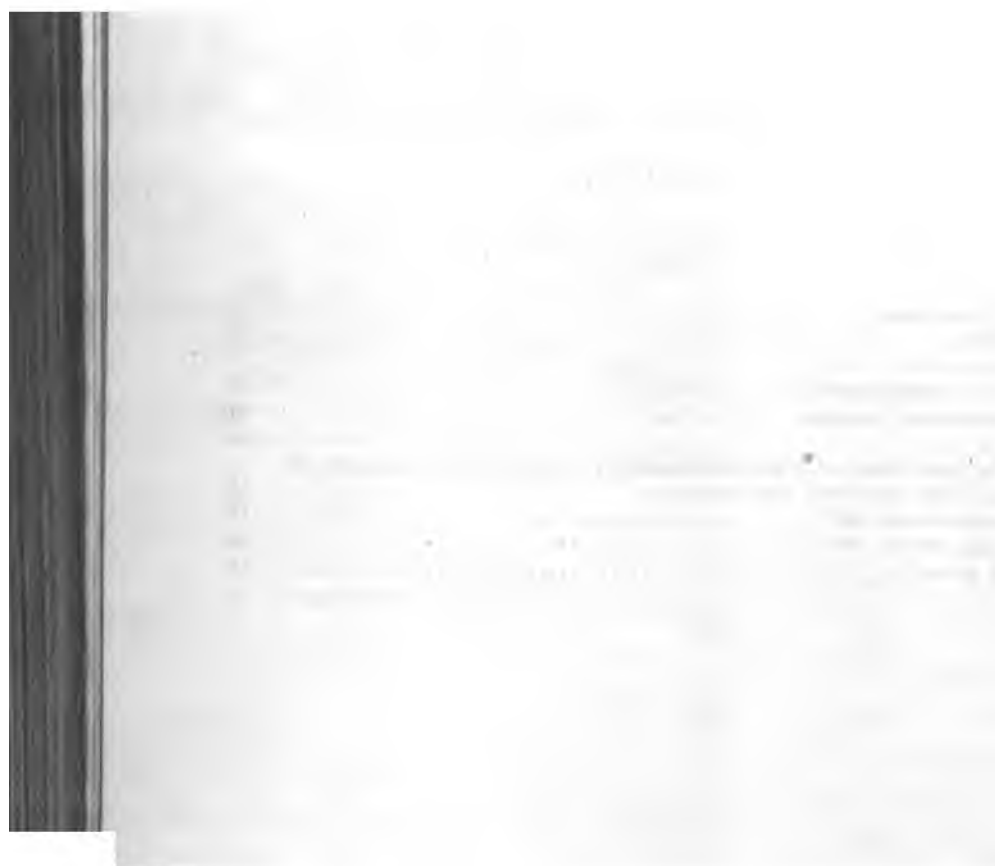


WASHINGTON
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LETTER OF TRANSMITTAL.

LICK OBSERVATORY,
UNIVERSITY OF CALIFORNIA,
Mount Hamilton, May 16, 1898.

DEAR SIR: I transmit herewith the record of earthquakes in California in 1896 and 1897, by Mr. Perrine. I trust that you may be able to publish this as a bulletin, as previously. The list of earthquakes in 1896 has already been published in a list compiled by Professor Holden and printed as one of the Smithsonian Miscellaneous Collections, but as it occupies only a few pages, to complete the series published by the Survey, we have thought you would prefer to have it included.

Yours, very truly,

J. M. SCHAEFERLE,
Acting Director

Hon. CHARLES D. WALCOTT,
Director United States Geological Survey.

THE HISTORY OF THE

REIGN OF

CHARLES THE FIRST

BY

JOHN BURNET, BISHOP OF SALISBURY

IN TWO VOLUMES.

LONDON, Printed by J. Streater, at the Sign of the Gun, in St. Dunstons Church-yard, 1680.

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EARTHQUAKES IN CALIFORNIA IN 1896 AND 1897.

By CHARLES D. PERRINE.

INTRODUCTION.

The following paper is a continuation of similar records¹ furnished by officers of the Lick Observatory, and completes the list up to the end of 1897. It records all the shocks observed or felt on Mount Hamilton and all those reported to the Lick Observatory by letter, as well as newspaper reports of such earthquakes as occurred in the State during the year.

It also includes a number of shocks in various localities on the Pacific coast which it was thought might not have been recorded in other reports. No systematic examination of newspapers has been made, however, and some reports of earthquakes may have escaped notice.

INSTRUMENTS.

The instruments used for recording earthquakes on Mount Hamilton are described in Publications of the Lick Observatory, Vol. I, p. 82. The largest and most complete instrument records the north-and-south, east-and-west, and vertical components of the earth's motion separately on a smoked-glass plate, which is started by the preliminary tremors of the earthquake and rotates in about three minutes, the edge of the plate being graduated into seconds by the clock, which also serves to record the time of occurrence of the shock. This instrument has been called the Ewing seismograph in the notes. Another form consists of the heavy "duplex" pendulum adjusted to a long period of vibration, with a magnifying pointer or pen, which records on a smoked-glass plate both horizontal components of the motion. The vertical component and the time are not recorded. The motion of the earth is magnified 4.6 diameters in the duplex seismometers. The Observatory possesses other seismographs of various patterns, but they are not constantly in use.

¹List of recorded earthquakes in California, Lower California, Oregon, and Washington Territory, from 1769 to 1888, by Edward S. Holden, Sacramento, State Printing Office, 1887. Earthquakes in California in 1888, by Edward S. Holden: *Am. Jour. Sci.*, 3d series, vol. 37, May, 1889. Earthquakes in California in 1889, by James E. Keeler: *Bull. U. S. Geol. Survey* No. 63, 1890. Earthquakes in California in 1890 and 1891, by Edward S. Holden: *Bull. U. S. Geol. Survey* No. 95, 1892. Earthquakes in California in 1892, by Charles D. Perrine: *Bull. U. S. Geol. Survey* No. 112, 1893. Earthquakes in California in 1893, by Charles D. Perrine: *Bull. U. S. Geol. Survey* No. 114, 1894. Earthquakes in California in 1894, by Charles D. Perrine: *Bull. U. S. Geol. Survey* No. 129, 1895. Earthquakes in California in 1895, by Charles D. Perrine: *Bull. U. S. Geol. Survey* No. 147, 1896.

SCALE OF MEASUREMENTS.

In the record made by the Ewing seismograph both the horizontal components are magnified about 4 diameters (see p. 12), and the vertical component is magnified 1.8 diameters. The measures of the vibrations as given in the notes are taken directly from the tracings, and therefore represent the magnified motion, unless otherwise mentioned.

If both the period (T) and the amplitude (a) of an earthquake wave are given, the maximum acceleration due to the impulse, which may be taken as the measure of the intensity (I) or destructive effect of the shock, is given by the formula—

$$I = \frac{4\pi^2 a}{T^2}$$

in which the motion is assumed to be harmonic.

DIFFERENCES OF INTENSITY.

Estimates of the intensity of shocks are given also (in Roman numerals inclosed in parentheses) according to the Rossi-Forel scale, which for convenience of reference is inserted below. Experience has suggested that for observations in California a few additions should be made to this scale, and these are printed here in italics. When these are in quotation marks also they are expressions actually used in newspapers, etc., in describing earthquake shocks whose intensity is otherwise known. The scale as amended is as accurate as anything of the kind can be.

I.

Microseismic shocks recorded by a single seismograph, or by seismographs of the same model, but not putting seismographs of different patterns in motion; reported by experienced observers only.

II.

Shocks recorded by several seismographs of different patterns; reported by a small number of persons at rest; "*a very light shock.*"

III.

Shock reported by a number of persons at rest; duration or direction noted; "*a shock;*" "*a light shock.*"

IV.

Shock reported by persons in motion; shaking of movable objects, doors, and windows, cracking of ceilings; "*moderate;*" "*strong;*" "*sharp;*" (sometimes) "*light.*"

V.

Shock felt generally by everyone; furniture shaken; some bells rung; *some clocks stopped; some sleepers waked; "smart;" "strong;" "heavy;" "severe;" "sharp;" "quite violent."*

VI.

General awakening of sleepers; general ringing of bells; swinging of chandeliers; stopping of clocks; visible swaying of trees; some persons run out of buildings; *window glass broken*; "*severe*;" "*very severe*;" "*violent*."

VII.

Overturning of loose objects; falling of plaster; striking of church bells; general fright, without damage to buildings; *nausea felt*; "*violent*;" "*very violent*."

VIII.

Falling of chimneys; cracks in the walls of buildings.

IX.

Partial or total destruction of some buildings.

X.

Great disasters; overturning of rocks; fissures in the surface of the ground; mountain slides.

The relation between the intensity of a shock as determined by the formula already given and the numbers of the Rossi-Forel scale has been reduced from all available data up to 1888 by Professor Holden, and is given below in tabular form. It is, of course, a rough approximation only:

Intensity, Rossi-Forel scale.	Intensity, millimeters per second.	Difference.
I.....	20	
II.....	40	20
III.....	60	20
IV.....	80	20
V.....	110	30
VI.....	150	40
VII.....	300	150
VIII.....	500	200
IX.....	1,200	700

One of the objects of the earthquake observations on Mount Hamilton is to obtain data for correcting this table, so that the intensity (I) of a shock, as defined mathematically by the formula

$$I = \frac{V^2}{a}$$

(where V is the maximum velocity of the vibrating particle), can be inferred from the ordinary description of its effects.

STATIONS.

A number of duplex-pendulum seismographs, quite similar to the one used at the Lick Observatory, are placed at different points on the Pacific coast, but they are not all in operation. The stations are:

Students' Observatory, Berkeley, in charge of Professor Leuschner.

Chabot Observatory, Oakland, in charge of Mr. Burckhalter.

Private observatory of Mr. Blinn, in East Oakland.

Observatory of the University of the Pacific, San Jose.

Observatory of Mills College, near Oakland, in charge of Professor Keep.

Office of State Weather Bureau, Carson, Nevada, in charge of Professor Friend.

Alameda, California, at the residence of Mr. P. Perrine.

Esquimault, British Columbia, at the Meteorological Station, Mr. E. Baynes Reed in charge.

Tacoma, Washington, at the residence of Mr. F. G. Plummer. (Mr. Plummer's seismograph is not a duplex.)

The reports of the United States Weather Bureau and of the United States Light-House Board should be consulted in this connection, as they record disturbances felt at their stations, which may not be included in this list.

MAGNIFYING RATIOS OF EWING SEISMOGRAPHS OF THREE COMPONENTS, AND OF THE DUPLEX-PENDULUM SEISMOGRAPHS.

In the following deductions the pen and plate are assumed to move with respect to the steady point, and the motions of each are considered separately. In the reduction of the recorded displacements given by the pens upon the smoked glass plate, to the actual displacement of the earth particle, there are several circumstances to be taken into account. In the case of the two horizontal components there are four considerations, viz:

A.—The ratio of the pens, i. e., the distance from the point of the pen to the steady point, divided by the distance from the steady point to the point of support.

B.—The angle which the meridian of the pens makes with the true meridian of the place. If they coincide, there is no factor to be introduced on that account.

C.—The angle which a radius of the circular plate drawn through the point of the pen makes with a line drawn through the point of the pen and the steady point. If this angle is 90 degrees, there is no factor to be introduced on this account.

D.—The effect on the record caused by the motion of the record plate itself, due to the earthquake.

Let a = the record of the N. and S. pen as it appears upon the plate.

b = the record of the E. and W. pen as it appears upon the plate.

Let d = distance from steady point to point of support of pendulum.

e = distance from steady point to point of pen.

$$r = \frac{e}{d}$$

x = angle which the meridian of the pendulums makes with the true meridian of the place.

y and y' = angle between the direction of the pen arm and a radius of the plate drawn through its point for the N. and S. and E. and W. pens, respectively.

z = angle which the radius of the plate drawn through the point of the pen makes with the true meridian of the place.

α = actual displacement of the earth N. and S.

β = actual displacement of the earth E. and W.

A.—The ratio of the pens is the ratio of the distances from the steady point to the point of the pen, and from the steady point to the point of support; in the instruments we are especially considering, the line joining the steel points which bear in the agate cups. Theoretically, the steady point, or rather line, is the vertical line through the cylindrical weight about which the force of gravity is symmetrical. Practically, there is a little uncertainty as to the exact location of the steady point, which, however, will be very near the axis of the cylindrical weight.

This ratio is given by the formula:

$$r = \frac{e}{d}$$

B.—The horizontal pendulums should be so adjusted that their meridian coincides with the true meridian of the place; i. e., that the plane (q) passing through the points of support and the steady point of the pendulum, in the case of the E. and W. pendulum, should coincide with the meridian. In the N. and S. pendulum this plane should lie E. and W.

If, however, there is no such coincidence and the meridian of the instruments makes an appreciable angle (x) with the true meridian, then the displacements of the pendulums in the true coordinates by the earthquake will vary with this angle. If the direction of the earth's motion which it is designed to register is not *normal* to the plane (q), then the recorded motion will be less than it should be in the ratio of $\cos x : 1$.

C.—If the horizontal pens are so situated that when at rest the radii of the plate passing through their points are tangent to the arcs described by them, then no factor is to be introduced on this account. Otherwise the displacement measured on such a radius will be too small in the proportion $\cos y : 1$.

D.—The plate upon which the record is made is, of course, carried about by the earth in its movements, which must be taken into account in deducing the actual motion of the earth from the records of the pens.

In horizontal pendulums where the angle (p) between the lines drawn from the steady point to the point of the pen and from the steady point to the point of support is greater than 90 degrees, it can be shown that the *motion of the plate* due to the earthquake will be *additive* to the *pen's motion*, thus *increasing* the *record* of the pen, the plate being carried under the pen in an opposite direction to that in which the pen is moving. On the other hand, if the angle (p) is less than 90 degrees the effect will be the opposite; i. e., to *decrease* the pen's record. This assumes that the pendulums are not *far* out of adjustment with respect to their meridians. In the Lick Observatory instruments the angle (p) is greater than 90 degrees; hence the effect is to *increase* the record. This is true for both coordinates.

The component motion of the *plate* N. and S. as projected on a radius depends upon the angle (z) which that particular radius makes with the meridian, and varies as the *cosine* of that angle.

The component motion of the *plate* E. and W. as projected on the radius passing through the point of the E. and W. pen will vary as the *sine* of the angle (z).

From the foregoing we deduce the following formulæ for the reduction of the observed records to the true displacements of the earth:

$$\frac{a}{\alpha} = \frac{e \cos x \sin y}{d} \pm \cos z \quad (1)$$

$$\frac{b}{\beta} = \frac{e \cos x \sin y'}{d} \pm \sin z \quad (2)$$

Professor Schaeberle suggests that we may also consider the plate and supports of the pens as one rigid system, and the steady point to move with respect to this system.

Let f = distance from point of pen to point of support of pendulum, and, as before, d = distance from steady point to point of support of pendulum.

Then, on the above assumption, it can be shown that

$$\frac{a}{\alpha} = \frac{b}{\beta} = \frac{f}{d} \quad (3)$$

so long as the instrumental meridian coincides with the true meridian of the station, and the radius of the plate passing through the points of the pens is normal to the lines passing through the points of the pens and their points of support. If, however, the instrument is not in adjustment in these two particulars, due allowance must be made for such variations.

THE VERTICAL COMPONENT.

In the mechanism for recording the earth's vertical motion, the pen proper is jointed to a vertical arm, which in turn is fastened rigidly to the counterpoised pendulum. The lifting by the earth causes the joint between the pen arm and the vertical arm to be displaced in the arc of

a circle whose center is the steady point of the pendulum. This displacement is resolved into a *horizontal* component (s), which leads to the magnified record on the plate, and a *vertical* component (t).

Let h =distance from steady point to point where pen arm is hinged to vertical arm.

i =distance from point of support to hinge of pen arm.

j =distance from steady point to point of support of pendulum.

m =angular displacement of the hinge of pen arm from the steady point as a center.

n =angle included between the lines drawn from pen arm hinge to steady point, and from pen arm hinge to point of support of pendulum.

s =horizontal component of the displacement of pen-arm hinge.

t =vertical component of the displacement of pen-arm hinge.

γ =vertical displacement of the earth.

c =the record of the vertical pen as it appears upon the plate.

m and n are found from

$$\sin m = \frac{\gamma}{j} \quad (4)$$

$$\tan n = \frac{j}{i} \quad (5)$$

and we find s and t from

$$s = \frac{h \sin m}{\cos \frac{1}{2} m} \cos (\frac{1}{2} m + n) \quad (6)$$

$$t = \frac{h \sin m}{\cos \frac{1}{2} m} \sin (\frac{1}{2} m + n) \quad (7)$$

For ordinary displacements of the earth (m being always small) we may write (6) and (7) in the following forms:

$$s = h \sin m \cos n \quad (8)$$

$$t = h \sin m \sin n \quad (9)$$

It will be seen that the pen-arm hinge is lifted a little *higher* by the earth's motion than the plate itself. This causes the pen's record on the plate to be *shortened* slightly.

In a seismograph of the usual form the dimensions are such that so long as the pen arm makes but a small angle with the plane of the plate this factor will be small.

To compute the amount of this shortening, we have the following quantities in a right triangle:

a' = distance from point of pen to hinge of pen arm = hypotenuse.

b' = perpendicular let fall from hinge of pen arm to plate.

c' = distance from pen's point to foot of perpendicular = base of triangle.

A', B', C' = angles opposite given sides respectively, A' being the right angle.

We find B' from

$$\sin B' = \frac{b'}{a'} \quad (10)$$

and we have (approximately)

$$\Delta c' = - \frac{\cos C' \Delta b'}{\cos B'} \quad (11)$$

in which $\Delta c'$ is the decrease in the *record* due to the increase ($\Delta b'$) in the distance from pen-arm hinge to plate as a result of the lifting of the instrument by the shock.

For the Lick Observatory instrument we have:

$$a' = 5''.75$$

$$b' = 1''.75$$

Using this data, I have computed the shortening of the *record* due to this cause, and find it to be only $0''.014$ for a vertical motion of the earth of $0''.50$. Hence it will be seen that for shocks likely to be observed with these instruments this effect may be ignored without sensible error.

If in equation (8) we substitute for $h \cos n$ its equivalent i , and for $\sin m$ its equivalent $\frac{\gamma}{j}$ we find (approximately),

$$\frac{s}{\gamma} = \frac{i}{j}$$

It can be shown that the same result follows from considering the motion to be about the support of the pendulum as the axis.

Finally we have for the magnifying ratio of the vertical pen,

$$\frac{c}{\gamma} = \frac{s}{\gamma} + \Delta c' \quad (12)$$

in which $\Delta c'$ may be neglected, as shown, or with sufficient accuracy,

$$\frac{c}{\gamma} = \frac{i}{j} \quad (13)$$

For the Lick Observatory instruments we have the following data:

$$d = 3.75 \text{ inches,}$$

$$e = 13.0 \text{ inches,}$$

$$x = 6^\circ,$$

$$y = 105^\circ,$$

$$y' = 76^\circ,$$

$$z = 38^\circ.5,$$

$$h = 10.3 \text{ inches,}$$

$$i = 9.0 \text{ inches,}$$

$$j = 5.0 \text{ inches,}$$

from which we derive the following ratios:

$$\frac{a}{\alpha} = 4.11 \quad (\text{N. and S.})$$

$$\frac{b}{\beta} = 3.97 \quad (\text{E. and W.})$$

$$\frac{c}{\gamma} = 1.8 \quad (\text{vertical}).$$

The data given above and the constants deduced from them are suitable for the reduction of observations from April, 1893, to date.

MAGNIFYING RATIO OF THE DUPLEX SEISMOGRAPH.

In the ordinary form of this instrument there are two circumstances to be considered as affecting the magnification of the earth's motion, viz:

First. The magnifying ratio of the vertical arm, which is given by

$$\frac{a''}{b''}$$

in which

a'' = distance from lower end of vertical arm to level of glass plate;

b'' = distance from lower end of vertical arm to gimbal joint of bracket.

Second. The motion of the plate itself during the shock. It can be shown that the motion of the plate itself tends to decrease the *record* by the amount of the earth's motion. Hence we have the following formula for the magnification:

$$\frac{a'' - b''}{b''} \quad (14)$$

In the Lick Observatory instrument of this class we have,

$$a'' = 13^{\text{in}}.10$$

$$b'' = 2.35$$

and consequently the magnifying ratio = 4.6.

Owing to uncertainties, such as the friction of the pen upon the plate, the friction of the pendulums at the point of support, the probable motion of the steady point itself after a few seconds, and other minor causes, it is not necessary to take into account all the lesser factors affecting the magnification of the record. All that is here attempted is to include those which have a practical effect. I have not been able to find the formulæ for these reductions in any publication on the subject here.

CHRONOLOGICAL RECORD, 1896.¹

1896. January 3; Esquimault, British Columbia; 10h. 9m. p. m., P. s. t.²

A distinct shock of earthquake.—Reported by E. Baynes Reed.

1896. January 3; Victoria, British Columbia; 10h. 20m. p. m.

A severe shock of earthquake was felt here to-night at 10.20 o'clock.

Many citizens in the public offices, believing the shock to be produced by the falling in of some large roof, or like cause, hurried to the streets.—Newspaper report.

1896. January 3; Port Angeles, Washington; 10h. 30m. p. m.

At 10.30 o'clock last night two distinct shocks of earthquake were felt in this city. They were severe enough to shake chimneys off lamps and dishes off shelves (VII Rossi-Foré scale).—Newspaper report dated January 4, 1896.

1896. January 5; Cocopah Mountains, via Indio, January 5.

Prospectors report seeing immense quantities of smoke and steam rising off the desert toward the volcanoes below the Cocopah Mountains during the day and a bright light at night, showing that the volcanoes in that vicinity are again in active operation.—San Francisco Chronicle.

1896. January 8; Turn Point Light House, Washington; 9h. 56m. p. m.

A shock.—MS. kindly communicated by the United States Light-House Board.

1896. January 8; Lake Chapala, Mexico, via San Diego, California, January 12.

Prof. E. H. Coffey, of this city, has just received a letter from a correspondent living near Lake Chapala, State of Jalisco, Mexico, which describes some startling phenomena occurring there. Lake Chapala is a sheet of water 50 miles long and 10 miles wide. The formation of the country around it is purely volcanic. On the forenoon of January 8 the residents of one of the small settlements near the western end of the lake were terrified to see a gigantic whirlpool raging far out on the waters. The water rose in great serpentine movements and from all directions rushed toward a common center, where a vast cavity seemed to exist. At the same time a heavy rumbling, apparently in the bowels of the earth, took place. The whirlpool was caused by the sudden sinking of a large portion of the lake's bottom. The disturbance continued for twenty minutes, and before it subsided several pleasure boats were drawn into the whirlpool and disappeared with their occupants. It is estimated that a score of lives were lost.—San Francisco Examiner, January 13.

¹ Included in this list are one or two reports the correctness of which may be doubted. These were derived from newspapers entirely and are of such a nature that they should be confirmed before acceptance. Each of these doubtful reports has been indicated by some note.

² Pacific slope time.

1896. January 25, 27; Carson, Nevada.

Prof. C. W. Friend reports: We have had quite a number of earthquake shocks on January 25 and 27, 1896; they were rather peculiar. On the 25th the first noticeable one occurred, at 4.45 a. m., and was the heaviest that day. I also noticed one at 4.46 a. m. and 5.02 a. m., both light. The motion, west to east, was hardly perceptible.

We had quite a number of shocks on the 27th, viz: 7.59 a. m. S. to N. (II Rossi-Forel scale); 8.34 a. m. W. to E. (III); 11.04 a. m. SW. to NE. (III); 11.19 a. m. SW. to NE. (I); 1.01 p. m. SW. to NE. (IV); 6.32 p. m. SW. to NE. (II); and quite a number of very light tremors between, which I noticed, being quiet in the building. The seismographs did not record a spot larger than one-tenth inch on the plate for all of these, although some of the shocks were quite severe, so much so that a great many people were scared. On the 25th I hung up a 1-ounce plumb bob on a fine thread 3 feet long in a glass case fastened to a stone wall, and it was all I could do to determine the motion by it; all the shocks, including those of the 25th, were vertical and produced a very strange feeling.

1896. January 27; Carson, Nevada.

The first heavy shock was about 8.30 o'clock in the morning, and it was quick and lively. It rattled the glass and china in everybody's cupboard, made the windows shake, and got several lazy people out of bed (R.-F. V?). The next was about 11 o'clock and was also quite sharp. At 1 o'clock came the heaviest of all, and it shook every building in the city. The capitol building was particularly well shaken, and inside of a minute there was a rush to the basement of the building to see the record of the seismograph. It had been deflected about an eighth of an inch by each shock, and had also recorded small shocks all through the day.

The Signal Service records showed a very unsettled barometer. Rapid changes occurred, and their suddenness was unequalled by anything recorded since last July. These shocks were all graded as No. III, Rossi-Forel scale. There were two others during the day that graded I and II, respectively. The first was north and south, the second east and west, and the last three southwest and northeast. They were principally vertical.

The jar at 1 o'clock made a large crack in the side of the Government building, and shook some of the plaster from the ceiling of the county building (VII).—San Francisco Call.

1896. February; Tauquiz Peak, via Los Angeles, February 4.

A special to the Times from San Jacinto says: There is considerable excitement here over what appears to be an eruption of part of the San Jacinto Mountains called Tauquiz Peak, 20 miles from here. The streets of San Jacinto have been crowded with people looking through telescopes at the ominous clouds of smoke which have

1896. February; Tauquiz Peak, via Los Angeles, February 4—Continued.

hung over Tauquiz all day. When first noticed at 9 o'clock the vicinity of the peak was hazy with smoke. Within the next hour this cleared away and glasses leveled at the extinct volcano were able to detect a straight line of smoke ascending. Soon this disappeared, and then, puff, puff, came more black smoke, like that which pours out of the smokestack of a locomotive.

The smoke has continued to pour out of Tauquiz all day, and everybody is much excited, fearing an eruption. This peak has been pronounced by scientists an extinct volcano.—San Francisco Chronicle, February 5, 1896.

This report has not been confirmed.—O. D. P.

1896. February 5; Tauquiz Mountain, via San Bernardino, February 5.

Parties who have returned from the San Jacinto Mountain report that Mount Tauquiz gives out mysterious rumblings and that smoke is plainly visible. To-day smoke was seen from this city.—San Francisco Chronicle.

1896. February 5; Tauquiz Mountain, via San Bernardino, February 7.

Mount Tauquiz, a spur of the San Jacinto Mountains, and well known to be an extinct volcano, situated about 12 miles from the town of San Jacinto, is again reported to be giving forth smoke. Two men from San Jacinto say a column of vapor can be plainly seen rising from the highest point and that it looks nearly as white as snow. Reports of this mountain being in a state of active eruption have been numerous for several days, and to-morrow a party of newspaper reporters will leave the city on an expedition to Tauquiz. The last 4 miles of the trip will have to be made through banks of snow several feet in depth, the mountain being covered with snow this season of the year and being 10,000 feet in height.—San Francisco Examiner, February 8, 1896.

1896. February 5; Tauquiz Mountain, via San Bernardino, February 9.

It is reported to-day that people in and about Mount Tauquiz are getting ready to leave the vicinity, as the action of the mountain is, to say the least, very threatening.

The first that was noticeable in its strange demeanor was a whistling sound—not shrill, but hoarse and guttural-like. This was followed by a deep roar like distant thunder, followed by peal on peal.

This continued for several days, when one morning the Indians in camp were startled by a shock like that of a heavy earthquake, and immediately smoke was seen issuing from the mountain's peak, at first in thin white layers, followed immediately by puffs like those from the smokestack of an engine. This has kept up almost incessantly up to date.

It has been handed down in Indian history in that neighborhood that Mount Tauquiz once belched forth volumes of fire.—San Francisco Call, February 10, 1896.

1896. February 6; East Clallam, Washington; 9h. 55m. p. m.

Quite a well-defined shock. The direction of the temblor was from west to east. It lasted about a minute. Every house in the town, large and small, was shaken to its very foundations, but as far as can be learned no damage was done.

The Indians on Neah Bay Reservation all felt the shock. The same shock was also experienced on Tatoosh Island about the same time. The captain of the bark *Edinburghshire*, lying at anchor in the bay, says the shock was felt by every person aboard his vessel. Some of the sailors became so scared that they wanted to take to the ship's boats.—San Francisco Chronicle.

1896. February 13; Redding.

A slight earthquake shock was felt in this city about 10 o'clock this forenoon. The shock was more perceptible in the western part of the city and on the hill upon which the county court-house stands.

1896. February 13; Weaverville; 9h. 55m. p. m.

Three successive shocks of earthquake were felt very perceptibly here at 9.55 o'clock. They were of short duration, with a vibration from south to north. Buildings of more than one story received a hard shaking.

1896. February 13; Eureka; 9h. 55m. p. m.

At 9.55 o'clock this morning a sharp shock of earthquake, vibrating from north to south, was felt in Humboldt County.—San Francisco Examiner, February 14, 1896.

1896. February 15; Los Angeles; 2h. 52m. p. m.

A distinct shock of earthquake was felt here at 2.52 p. m. The temblor lasted several seconds. Large buildings of substantial structure were considerably shaken. In the court-house the shock was distinctly felt by the county officials and their deputies, and they were frightened.

1896. February 15; Pasadena; 2h. 57m. p. m.

Pasadena was visited by a slight earthquake shock at 2.57 o'clock this afternoon, lasting about fifteen seconds. The wave seemed to pass from northwest to southeast.—San Francisco Call.

1896. February 15; Los Angeles; 2h. 45m. p. m.

A slight shock, lasting about two seconds, was felt in this vicinity at 2.45 o'clock this afternoon.—San Francisco Chronicle.

1896. March 15; Burrard Mountains, British Columbia, via Vancouver, British Columbia, March 16.

One of the Burrard Mountains, directly opposite Vancouver and 10 miles distant, is believed to have been in a state of eruption last night. Numbers of persons vouch for the accuracy of the statement. C. Harris, a reputable lawyer, declares that dense smoke and flames poured from the mountain for several minutes. No one has scaled the mountain, so that its geological formation is not known. In view of the fact that several shocks of earthquake occurred here in the past year, the story is believed by many.—Newspaper report.

This report has not been confirmed.—C. D. P.

1896. March 19; Carson, Nevada; 4h. 1m. a. m.

Light.—C. W. F.

1896. March 20; Carson, Nevada; 11h. 25m. p. m.

Light.—C. W. F.

1896. April 2; Portland, Oregon; 3h. 20m. $\pm$ p. m.

About 3.20 a. m. a single shock of brief duration was felt here. The shock was felt as far south as Salem.

1896. April 2; McMinnville, Oregon; 3h. 17m. a. m.

The inhabitants were awakened at 3.17 this morning by an earthquake (R.-F. VI). Two or three distinct shocks followed in quick succession, with a loud rumbling noise coming from the west. The earth appeared to tip toward the east.—San Francisco Chronicle.

1896. April 28; San Francisco; 2h. 57m. p. m.

A slight shock, lasting a very short time. It was observed by none of the Weather Bureau officials on the tenth floor of the Mills Building.

"We were in the office of the Alaska Commercial Company, at 310 Sansome street, when the shock occurred," said Professor Davidson.

"All who felt the shock agreed that the movement was from east to west. The shock was very light and of short duration, lasting not more than a second, if that long. My son took the time, which was 2.57 p. m."—San Francisco Chronicle, April 29, 1896.

1896. April 28; Alameda.

A disturbance was registered by Mr. Perrine's instrument, the principal motion being north and south.

1896. June 5; 10h. 20m. p. m.; Cape Blanco Lighthouse, Oregon.

Tower vibrated considerably for about thirty seconds. I could not say positively that it was caused by an earthquake.—MSS. kindly communicated by the United States Light-House Board.

1896. June—; Big River, California, via Ukiah, June 23.

Considerable excitement was created on the coast of Mendocino "a few days ago" by an immense tidal wave. The swell was 7 feet higher than ordinary and rushed up Big River with great force. The great wall of water is attributed to the Japanese earthquake.—San Francisco Chronicle, June 24, 1896.

1896. July 3; San Diego; 9h. 27m. p. m.

A severe shock of earthquake. It lasted for several seconds. The oscillation was from north to south and was quite pronounced.—Newspaper report.

1896. July 13; Berkeley.

Slight record.—Professor Soulé.

1896. July 23; Vallejo; 1h. 50m. a. m.

A sharp shock. The vibrations were from southeast to northwest.—San Francisco Chronicle.

1896. July 25; Berkeley.

Slight record N. and S. [?].—Professor Soulé.

1896. July 26; Berkeley.

Same as July 25 [?].

1896. August 11; Mount Hamilton; 8h. 58m. 7s. $\pm$ p. m., P. s. t.

Rossi-Forel II.—E. S. Holden.

No record of the above on either of the seismographs.

1896. August 11; Alameda.

Mr. Perrine's seismograph shows quite a complicated tracing, the principal disturbance being east and west.

1896. August 17; Merced.

At 3.40 o'clock this morning Merced was visited by an earthquake which lasted about three seconds. The roll was from north to south and shook things up quite lively for the time. Many clocks stopped as a result (VI).

1896. August 17; Visalia; 3h. 29. $\pm$ a. m.

A slight earthquake shock was felt here early this morning; a very slight temblor, followed in about five seconds by three distinct wave-like motions in quick succession. The direction the waves traveled seemed to be a little north of west. The time, as fixed by different observers, was from 3.29 to 3.30 o'clock.—San Francisco Chronicle.

At 3.26 o'clock this morning Visalia was shaken by an earthquake.

There were two distinct shocks. Many persons were awakened and alarmed (VI).—San Jose Mercury, August 18, 1896.

1896. August 18; Mount Hamilton.

11h. 0m. 24s. $\pm$ p. m., P. s. t. Rossi-Forel III.—E. S. Holden.

11h. 0m. 13s., P. s. t.—A. L. Colton.

1896. August 18; Napa.

A slight shock was felt here this afternoon.—San Francisco Chronicle.

1896. August 18; Evergreen, Santa Clara Co.; 11h. 0m. 15s. p. m., P. s. t.

I was awakened by a slight earthquake, running, apparently, from north to south.—William Wehner.

1896. August 19; Alameda.

A slight disturbance was recorded by Mr. Perrine's seismograph. The direction of motion could not be determined.

1896. August 26; Mount Hood, Oregon.

Newspaper dispatches report the narrow escape of a party of tourists on Mount Hood on the afternoon of August 26 from an avalanche.

The dispatches convey the impression of a volcanic eruption, but it seems entirely possible to explain the occurrence without any such assumption. A slight earthquake may have accompanied or even caused the avalanche. No reports have been received of any disturbances elsewhere on that day.

1896. September 1; Pinole, Contra Costa County.

[At 1 o'clock p. m. the works of the California Powder Company exploded. There were three separate explosions, the heaviest one being the mixing house with its 15,000 pounds of dynamite. This explosion was not noticed at Mount Hamilton, nor did the seismographs or barometers record any tremors.]

1896. September 10; Santa Rosa; 3h. 45m. a. m.

A sharp shock. The vibration was north and south.—San Francisco Chronicle.

1896. September 24; Mount Hamilton; 5h. 25m. p. m.

5h. 25m. 30s. $\pm$ p. m., P. s. t. R.-F. III.—E. S. Holden.

5h. 25m. 45s. p. m., P. s. t. R.-F. I. L. O. main building creaked, but did not notice any particular motion. There was a slight mark on the plate of the duplex seismograph.—C. D. P.

1896. September 30; Descanso.

California State Weather Service Bulletin.

1896. October 19; Santa Rosa; about 6 a. m.

Quite a severe earthquake shock. The vibrations were from north to south, lasting about three seconds. No damage.—San Francisco Chronicle.

1896. November 3; Mount Hamilton; 10h. 58m. 44s. $\pm$ 1s. a. m.

In my office rattled stove, lamp shade, etc. Three or four short, sharp shocks, all within one and one-half seconds.—W. W. Campbell.

1896. November 11; Cahto.

Two shocks of more than ordinary note were felt here at 2 o'clock this morning. They shook crockery from shelving, stopped clocks, etc., doing no material damage. The vibrations were from east to west and the duration was about four seconds (R.-F. VI).—San Francisco Chronicle.

1896. November 29; Mount Hamilton; 11h. 3m. 37s. a. m., P. a. t.

An irregular, slight shaking, lasting five or six seconds. Not exactly like the vibrations of an earthquake, but could find no other explanation (R.-F. I). I was in the 12-inch dome at the time. No record on the seismographs.—C. D. P.

1896. December 8; Mexico.

A heavy earthquake occurred to-day at the various Pacific ports of this Republic, the first shock coming at 9.30 a. m. and the second, an up-and-down and very alarming one, at 1.30 p. m., and at 5 p. m. the third shock occurred. No casualties are reported.—San Francisco Chronicle, December 9, 1896.

1896. December 17; Santa Barbara.

A tidal wave, the largest in the history of Santa Barbara, washed over the boulevard at 8 o'clock this morning, carrying back with it a large section of that beautiful and expensive driveway. The boulevard was built some five years ago and bulkheaded so securely that it was thought to be impervious to the action of the waves, but the bounding billows carried off in its receding grasp a portion of asphaltum and solid masonry, heavy framework and iron, nearly 50 feet square and 8 feet deep. A large sand hill between the boulevard and ordinary high tide was carried completely out to sea.—San Jose Mercury, December 18, 1896.

1896. December 22; Mount Hamilton.

1h. 52m. 41s., P. s. t. (R.-F. V).—E. S. H.

1h. 52m. 43s., P. s. t. (middle of shock). Three seconds duration.

Did not rattle dishes.—W. W. C.

1h. 52m. 44s., P. s. t. (end of shock).—W. J. H.

1h. 52m. 44s., P. s. t. (end of shock), duration estimated at two seconds.—A. L. C.

1h. 52m. 37s. $\pm$ 1s., P. s. t. Time noted at cottage.—R. G. A.

1h. 52m. 40s. p. m., P. s. t. (beginning). Second floor brick house.

Lasted two to three seconds. Light tremors increasing to two well-marked vibrations, then dies out suddenly. Building creaks.

Direction seemed to be N. and S.—C. D. P.

The duplex seismograph recorded a small disturbance, about NW. and SE.—1.5 mm. $\times$ 1 mm. NE. and SW. The clock only of the Ewing instrument was started.

1896. December 31.

The following notes are from MSS. kindly communicated by the United States Light-House Board. The reporters are the light-house keepers:

Coquille River (near Bandon), Oregon: The station went into operation February 29, 1896. No earthquakes during the year.

Cape Arago, Oregon: No record of earthquakes from January 4, 1891. No previous record.

Umpqua River, Oregon: Station went into operation January 1, 1895. No record of any earthquakes.

Haceta Head, Oregon: Station went into operation April 1, 1895. No record of any earthquakes.

Cape Meares, Oregon: Station went into operation January 1, 1890. No record of any earthquakes.

Tillamook Rock, Oregon; also Point Adams, Oregon: No record of any earthquakes.

Cape Disappointment, Washington; also Willapa Bay, Ediz Hook, New Dungeness, West Point (all in Washington) have no records of any shocks on their books. Narrowstone Point, Washington, went into operation April 7, 1896. No earthquakes recorded.

Patos Island, Washington, went into operation December 1, 1893. No earthquakes recorded.

CHRONOLOGICAL RECORD, 1897.

1897. January 1; Berkeley; 1h. 10m. p. m.

Distinct shock; duration, five seconds. Recorded by the duplex seismograph. Reported by the Students' observatory.

1897. January 11; Oaxaca, Mexico; 4h. 25m. p. m.

CITY OF MEXICO, *January 11*.—At 4.25 this afternoon an earthquake was felt in Oaxaca, the first shock being general. The second was very sharp and caused consternation, but no harm was done of any consequence. There is much seismic activity in the State of Oaxaca, and at one point on the Pacific coast earthquakes have kept fishermen in continual alarm.—San Francisco Chronicle.

1897. January 16; Mount Hamilton.

3h. 58m. 41s. $\pm$ 5s. a. m. R.-F. II.—W. W. Campbell.

3h. 58m. 35s. $\pm$ 5s. a. m. R.-F. I. Third story of brick dwelling. Two rather long, slow waves lasting one and one-half or two seconds. Scarcely any trace on duplex seismograph. Did not start Ewing instrument.—C. D. P.

1897. January 17; San Francisco; 1h. 9m. p. m.

The following facts are taken from an article in the San Francisco Call of January 18:

A sharp earthquake shock was felt in all parts of this city a fraction of a minute after 1.09 o'clock yesterday afternoon. There were two well-defined counter vibrations of considerable force, according to the description by Weather Observer McAdie, who carefully noted the time, and subsequently compared notes with one of his coworkers in the weather forecast office in the Mills Building. He reports it as one of the shortest shocks he had ever felt, and was not certain that it was not due to an explosion rather than an earthquake, as he was at lunch and failed to notice any disturbance of the surfaces of liquids.

Prof. George Davidson felt two slight shocks about four seconds apart. He thinks the motion was wholly vertical.

The seismographic record at the Chabot Observatory showed that the disturbance was a heavy one, and that the vibrations were mainly from east to west.

1897. January 17; Alameda; 1h. 11m. p. m.

A complicated record was made by the duplex seismograph, the disturbance being principally east and west. The magnified record is 6 mm. long in this direction and 2 mm. north and south.—Reported by P. Perrine.

1897. January 17; Oakland; 1h. 11m. 11s. p. m., P. s. t.

Two sharp shocks were observed about one second apart. The time given is for the second shock and is believed to be correct within a second. The first shock seemed heavier than the second, and both suggested an explosion rather than an earthquake. An examination of the country in the direction of the powder mills was made immediately from the housetop, with a glass, but no evidences of an explosion were visible.

A heavy rumbling was noticed just preceding the shocks, and the house creaked. The windows on the north side of the house seemed to rattle before, and louder than those on the opposite side. The chandelier shook, and as it came to rest the vibrations appeared to be north and south approximately.—Reported by A. H. Babcock.

1897. January 17; Oakland; 1h. 10m. 55s. ± 2s. p. m., P. s. t.

The shock was accompanied by a distinct report.—Reported by G. R. Lukens.

1897. January 17; Mills College; 1h. 11m. p. m., P. s. t.

The shock was short, but quite sharp and distinct. Some say they heard a distinct noise before the shake.—Reported by Josiah Keep.

The blue print of the record made by a duplex seismograph, which accompanied the above report, shows an area of 7 mm. north and south and 4 mm. east and west, containing a great number of individual vibrations impossible to unravel. There are also one double wave and one or two single ones extending to the west (?) of the main disturbances.—C. D. P.

1897. January 26; Newport, Alsa Bay, Oregon; 2h. 45 m. p. m.

NEWPORT, OREGON, *January 27*.—This section was visited by an earthquake shock yesterday at 2.45 p. m. The shock was about three seconds in duration. Houses were shaken until dishes on the shelves rattled. The vibration appeared to come from a northerly direction, and was accompanied by a slight rumbling noise like thunder. Reports from Alsa Bay state that the shock was felt plainly there about the same time.—San Francisco Chronicle.

1897. February 2; Tomales.

SAN RAFAEL, *February 2*.—The town of Tomales, situated on Tomales Bay, Marin County, is greatly excited over two sharp explosions that were heard shortly before 11 o'clock this morning. The reports, which seemed to come from the direction of the ocean, were followed by a vibration of the earth's surface similar to that felt during earthquakes. The shaking sensation, though slight, was distinctly felt in Tomales and the adjoining country. Among those who felt the shock are John Arthur and M. O'Neal, dairy-men, and D. Thrasher, a blacksmith. It was at first supposed that the explosions were the reports of a gun aboard some ship in distress, but that theory was soon dismissed when it was learned that many of the citizens distinctly felt the earth tremble immediately

1897. February 2; Tomales—Continued.

after the reports. Edward Collins and Mrs. Keyes claim to have seen a meteor burst in a field near Tomales, but a thorough search failed to reveal any trace of a heavenly visitor. The citizens have come to the conclusion that Tomales was visited by a slight earthquake, but they are unable to explain the cause of the explosions.—San Francisco Examiner, February 3.

1897. February 5; Orizaba Volcano, Mexico.

CITY OF MEXICO, *February 6*.—Orizaba Volcano last night was somewhat active, throwing a red light against the sky and emitting large volumes of smoke. The inhabitants are alarmed, and fear that an earthquake will occur.—San Francisco Examiner, February 7.

1897. February 13; Colima, Tepic, Mexico.

COLIMA, MEXICO, *February 18*.—The people of this vicinity were treated to a shaking up last Saturday which for a time set almost the entire population to praying. An earthquake, which lasted ten seconds, was followed at intervals of two or three minutes by others of shorter duration for more than an hour. The cathedral tower perceptibly rocked, and it seemed for a time as if a disaster was certain. The streets were filled with people on their knees, while the priests did their utmost to console and pacify them.

The shocks were very distinct, and seemed to run from north to south. During the past three months there have been but six days when shocks have not been felt, and recently they have been increasing in intensity.

TEPIC, MEXICO, *February 18*.—The seismic disturbances which have been felt for the last three months along the coast have been much more pronounced during the past week, and on Saturday the old volcano of Ceboruco began an active eruption. This was one of the smaller volcanoes, and has never, in the memory of man, done much damage. The fires have never died out, and there have always been smoke and noxious gases arising from the crater, and numerous blowholes.

The first indication of renewed activity came Saturday at 2 o'clock in the afternoon, when a sharp earthquake shock startled the people of Tepic. Almost immediately afterward clouds of smoke and ashes spouted from the crater and continued during the rest of the day. Saturday night the display was very beautiful from the reflection of internal fires, but by Sunday night the disturbance had again died down, and only a thin cloud of bluish-gray smoke ascended from the crater.—San Francisco Chronicle.

1897. February 18; Mount Hamilton.

8h. 3m. 40s. $\pm$ p. m., P. s. t. R.-F. I. 8h. 4m. 30s. $\pm$ p. m., P. s. t. R. F. II.—E. S. Holden.

8h. 3m. 52s. $\pm$ 5s. p. m., P. s. t. R.-F. I. Heard a blast of wind immediately after—which might have caused it?—C. D. P.

1897. February —; Cacaluta, Mexico.

GUADALAJARA, MEXICO, *February 28*.—James Watson, an American who is interested in mining property near the coast of Colima, arrived from Cacaluta this morning, having left there just after the recent volcanic and seismic disturbance. He says that the shock was very marked at Cacaluta and along the shore, which is faced by an immense cliff of black rocks known as Roca Negro. Off this cliff the ocean is very deep, and it has been customary for vessels to skirt close to the shore. Immediately after the disturbance it was discovered that the water had shoaled to such an extent that boats were compelled to keep almost a mile offshore, and in many places, at low tide, rocks projected above the water. As the water had been from 15 to 20 fathoms deep 100 yards from the Roca Negro, it is thought that the bottom of the ocean for miles along here has been elevated.—San Francisco Chronicle.

1897. February —; Great Salt Lake, Utah.

SALT LAKE, UTAH, *March 1*.—What appears to be a genuine volcano has burst forth in the Great Salt Lake, a short distance south of Promontory Station, on the Central Pacific Railway. The phenomenon recently appeared in the shape of a small cloud hovering over the water about a mile and a quarter from the shore. It gradually increased in dimensions and shot up so high in the air that it is now visible for a great distance, and the water in the immediate vicinity boils and seethes and the spray is thrown high in the air for hundreds of feet. The volcano is situated in the big arm of the lake on the west side of a long range of mountains, and is distinctly visible from Brigham City. The phenomenon is accounted for by the fact that for the last six months there have been felt several slight shocks of earthquake in these regions.

A number of people have witnessed the phenomenon, which has caused considerable alarm in the vicinity.—San Francisco Bulletin. This has not been verified.—U. D. P.

1897. March 6; Acapulco, Vera Cruz, Oaxaca, Orizaba, Cordoba (Mexico); 7h. 30m. p. m.

CITY OF MEXICO, *March 7*.—The Government Meteorological Bureau has advices that the earthquakes which were felt yesterday were also felt in Acapulco, Vera Cruz, Oaxaca, Orizaba, and Cordoba at 7.30 o'clock in the evening. The weather is unusually warm, which is believed to be a sign of more shocks.—San Francisco Chronicle.

1897. March 13; Mount Baker, Washington.

The San Francisco Chronicle of March 16 contains a dispatch from Tacoma to the effect that Deputy United States Marshal Emory McGinnis saw what he took to be smoke issuing from the crest of Mount Baker on Saturday, March 13. Using a glass, his belief was strengthened.

1897. March 13; Mount Baker, Washington—Continued.

NOTE.—It has been rumored before that smoke was issuing from this mountain, but the facts were that clouds and dry snow carried about by the winds were the cause of the appearances ascribed to volcanic action.—C. D. P.

1897. March 15; Ukiah; 11h. p. m.

UKIAH, *March 16.*—A severe shock of earthquake was felt in this city at 11 o'clock last night. The vibrations were from north to south and lasted about ten seconds.—San Francisco Chronicle.

1897. March 15; Highland Springs, Pinta, Lakeport; 10h. 51m. p. m.

On Monday (March 15) at 10.51 p. m. a heavy shock of earthquake, lasting fully ten seconds. It was the most severe I have felt in twenty-two years in California. Others say there was one about twenty minutes earlier, but I did not feel it.

It was strong enough to throw a bottle off a shelf in Mr. Joseph Craig's house. I instantly noticed the time by my watch, which is with the railroad time of the San Francisco and North Pacific Railway. It was also severe at Pinta and Lakeport. The railroad time, I understand, is furnished by the observatory.—Reported by William B. Collier, under date of March 17.

1897. April 10; Mexico.

OAXACO, MEXICO, *April 10.*—The country south of here is experiencing another series of severe earthquakes. In the mountainous districts considerable damage has been done. There are no volcanic eruptions indicated.—San Jose Mercury, April 11.

1897. May 14; Moro Bay.

SAN LUIS OBISPO, *May 19.*—About 7.30 o'clock this evening residents of the country adjacent to Moro Bay were startled by a report, which began like the low rumble of thunder and ended with a somewhat louder blast. About a week ago a similar report was heard, and a mud geyser appeared in the small arm of Moro Bay, just opposite the town site of El Moro. This geyser has formed a small island, which for a week past has been the wonder of the people of the county, and has been visited by a great many.

Following the report this evening, a second geyser sprung into existence about 200 yards distant from the first and a little farther inland. This last geyser is an exact counterpart of the one formed last Friday night. Like the eruption of last Friday night, the surface of the second island bears evidence of having a small-sized crater, from which large quantities of the blackest mud are slowly arising.

The body of water in which these eruptions occurred is a small, narrow arm of Moro Bay, extending inland about a mile. It branches off from the main portion of the bay at the head of Moro Rock. The arm is not over a quarter of a mile in width at any point, and is almost uniform in width from its mouth to its end. The eruptions occurred within a short distance of the extreme

1897. May 14; Moro Bay—Continued.

end of the arm. The long stretch of land which forms the bar dividing the arm from the bay is only a few hundred yards in width and is supposed to be a long "rib" extending out from the granite formation of Moro Rock.

The island formed by the geyser to-night does not extend as far above the surface of the water as the one formed last Friday night by several feet, but is much broader, and the report was considerably louder.—San Francisco Chronicle, May 20.

1897. May 14; Reno, Nevada.

RENO, NEV., *May 14.*—Quite a severe shock of earthquake was felt here this evening about 6 o'clock, lasting several seconds. The vibration was from north to south.—San Francisco Chronicle.

1897. May 15; San Diego.

SAN DIEGO, CAL., *May 15.*—A slight earthquake shock was felt here at 4 o'clock this morning.—San Francisco Call.

1897. May 15; Carson, Nevada; 11h. 4m. a. m.

CARSON, NEV., *May 15.*—A severe earthquake shock was experienced this morning at 11.04, lasting two seconds. The seismograph registered the vibration from northeast to southwest. Plaster was broken in many buildings. The weather is sultry.—San Francisco Chronicle.

1897. May 22; San Diego; 6h. 58m. a. m.

SAN DIEGO, *May 22.*—There was a sharp shock of earthquake at 6.58 o'clock this morning, lasting two seconds.—San Jose Mercury, May 23.

1897. June 20; Mount Hamilton; 12h. 13m. p. m.

It was not more severe than R.-F. V at Mount Hamilton. The duration was twenty seconds in the third story of the brick dwelling. The shock of January 2, 1891, was R.-F. VII at Mount Hamilton.—E. S. Holden.

12h. 12m. 55s. to 13m. 5s.; direction northeast and southwest; "heavy," "rocked pictures on wall;" "very perceptible."—W. W. Campbell. A heavy earthquake shock was felt to-day at 12h. 12m. 56s. (noon). The shock lasted fully twenty seconds, and the direction of motion seemed to be nearly east and west.—R. G. Aitken.

12h. 12m. 56s.—H. D. Curtis.

12h. 13m. (second not noted).—J. Macdonald.

Both the Ewing and duplex seismographs recorded the shock.

The record of the duplex instrument is not complete, the pen coming in contact with some obstruction in its excursions to the west. The record is 16 mm. in length in a north and south direction, and 9 mm. east and west. The Ewing instrument was started and gave a complete record of the shock. The duration indicated by this instrument, in all three components, is slightly over thirty seconds. The vibrations of the pens continue for a much longer time, but after this are due probably to residual motion of the pendulums.

1897. June 20; Mount Hamilton—Continued.

The waves are generally of considerable amplitude and slow, the greatest motion being east and west. The heaviest wave seems to have occurred one second after the commencement of the shock, the amplitude (magnified) being 16.3 mm., or an earth motion of 4.1 mm., east and west. There is also a north-and-south component of this wave of 6.3 mm. (magnified), corresponding to an earth movement of 1.5 mm. Hence the greatest double amplitude of this wave is 4.4 mm., with a period of 1.5 seconds, which gives an intensity of 39 mm. per one second, or II on the Rossi-Foré scale. The next move recorded by the east and west pen is probably the one of greatest *intensity*, although of small magnitude,

$$a = 0.25 \text{ mm.}$$

$$T = 0.37 \text{ s.}$$

from which $I = 74$ or R. F. IV.

The greatest vertical disturbance occurred toward the middle of the shock, when the record shows four waves of 4 mm. double amplitude (magnified), with an average period of about two seconds. For the first four seconds of the shock there were but slight irregular vibrations.

The whole shock exhibits marked irregularities; none of the waves are smooth, but all have lesser vibrations superposed upon the larger.

On June 27 the finding clocks in the Large Dome and Meridian Circle House were found stopped at 6h. 2m. Mount Hamilton sidereal time, and wound up. They had been wound at noon on the day of the earthquake, and the time at which they stopped agrees within their probable limits of error of the sidereal time of the shock. The pendulum of the clock in the Large Dome swings east and west and that in the Meridian Circle House north and south.

1897. June 20; College Park.

The seismograph at the University of the Pacific registered the shock. The tracing is very complicated and is three times the size of the tracing by a similar instrument at the Lick Observatory. The axis of greatest disturbance was northwest and southeast, the record measuring 50 mm. in this direction. At right angles to this the record measures 28 mm. Allowing for a magnification of 4.0 diameters, this makes the greatest actual motion of the earth about 12 mm.

1897. June 20; Mills College; 12h. 13m. p. m.

The shock was quite severe, set chairs to rocking, etc., but did no serious damage. It seemed to be double, the latter part being the heavier.—Reported by Josiah Keep.

The print of the tracing accompanying the report shows a compact mass of vibrations, covering an area some 8 mm. in diameter, from which there extends on all sides several larger excursions of the

1897. June 20; Mills College—Continued.

pen and on the northeast, southeast, and southwest one or two double excursions of the pen to considerable distances. The total length of the record northeast and southwest is 30 mm., and at right angles to this 18 mm.

1897. June 20; Cantua Creek, Fresno County; 12h. 13m. p. m.

On Sunday, June 20, at 12.13 p. m., I felt a slight shock of earthquake; location NW. $\frac{1}{4}$ section 32, township 17 S., range 14 E., M., B. & M., on Cantua Creek, Fresno County. Duration about fifteen seconds; ninth shock; undulation and whirling motion.—S. C. Lillis.

1897. June 20; San Jose, 12h. 13m. p. m., P. a. t.

So far as reported, only one building was injured. The plastering on the walls of the South Methodist Church, northeast corner of Second and San Fernando streets, was cracked. A number of clocks were stopped.—San Jose Mercury, June 21.

1897. June 20; San Jose.

SAN JOSE, June 20.—San Jose was visited to-day by the longest continued earthquake on record, and at the same time one of much severity. It was just a little past the noon hour when the earth began to tremble, and there was a violent movement from east to west. At some of the churches services were still in session and the quake was so severe that there was a stop to the proceedings. Some persons left, but there was no panic.

The shake was so pronounced and continued so long it was noticed even by those walking on the street. Occupants of the lodging houses in the center of town came trooping out, in many instances in a state of great alarm. There have been rumors afloat this afternoon of damage to walls and plate glass, but they seem to be only of imagination.

Almost every clock in town was stopped, and there was a decided feeling of alarm while the tremor continued. Dishes were rattled, mirrors shaken, and rockers moved.—San Francisco Chronicle, June 21.

1897. June 20; Gilroy; 12h. 15m. p. m.

GILROY, June 20.—The most severe earthquake ever experienced in Gilroy occurred here to-day at 12.15 p. m. The oscillation was from northwest to southeast and it lasted for several seconds. People rushed from the churches and houses into the street and were terror-stricken for several minutes. Much damage was done to brick buildings, and chimneys all over town were cracked or demolished and plastering fell to the floor. The Southern Pacific Hotel had all the front windows shattered. Nearly every clock in town stopped at exactly the hour of the disturbance.

A report comes from Sargents Station, 6 miles from Gilroy, of the demolition of an adobe building, and also from San Juan much damage is reported.

1897. June 20; Gilroy—Continued.

A rain storm followed the earthquake. Several lighter shocks have been felt during the afternoon, and people are afraid to remain indoors.—San Jose Mercury, June 21.

GILROY, June 20.—The heaviest earthquake shock ever felt here took place at 12.11 p. m. to-day, lasting only a few seconds, but doing a great deal of damage.—San Francisco Chronicle, June 21.

1897. June 20; Hollister; 12h. 15m. p. m.

HOLLISTER, June 20.—At 12.15 p. m. to-day one of the severest earthquakes ever felt since 1868 took place. The vibrations lasted about fifteen seconds and seemed to be from north to south. Several thousand dollars worth of damage was done to buildings, fixtures, and goods. No casualties occurred, though several narrow escapes are recorded.

There is scarcely a brick building in the town that has not suffered, and it is reported that the court-house has been badly damaged in the way of cracked walls and plastering. The top of the north fire wall of the McMahon House fell upon adjoining buildings. Much window glass was broken and cracked. In several instances entire window sashes were thrown into the street from the second story of buildings.—San Francisco Chronicle, June 21.

1897. June 20; Salinas; 12h. 13m. p. m.

SALINAS, June 20.—Salinas was visited by the heaviest shock of earthquake experienced in its history to-day. The shock was felt about 12.13 p. m., the vibrations being from east to west and lasting probably fifteen seconds. The people were panic-stricken and rushed into the streets. Chimneys tumbled down and the plate glass in many business blocks was cracked. In many buildings in course of construction the fire walls toppled in and the walls were rent.—San Jose Mercury, June 21.

SALINAS, June 20.—The severest earthquake shock ever experienced in this section was at 12.15 p. m. to-day. The motion was from west to east and lasted nearly thirty seconds. A number of brick buildings were cracked, plate-glass windows smashed, and chimneys toppled over. The atmosphere has been very close all day, but has now become cooler and the clouds are dispersing.—San Francisco Chronicle, June 21.

1897. June 20; Los Gatos; 12h. 15m. p. m.

LOS GATOS, June 21.—The earthquake yesterday at 12.15 was the heaviest shock experienced in the place for many years. The oscillation was from north to south and lasted ten seconds. None of the buildings were injured, but the people on Glen Ridge ran into the streets, being afraid to remain indoors. Nearly every clock on Glen Ridge was stopped at exactly the hour of the disturbance.—San Jose Mercury, June 22.

1897. June 20; Santa Cruz.

SANTA CRUZ, June 20.—The earthquake shock shortly after noon to-day was distinctly felt in all parts of the city. Plastering was knocked from the walls in many buildings, and the terror-stricken people rushed out into the streets, fearing that the structures would fall upon and crush them. The vibration appeared to be from east to west. Only cases of minor damage have been reported.—*San Jose Mercury*, June 21.

SANTA CRUZ, June 20.—The heaviest earthquake shock in years was felt here at 12.20 to-day. A slighter shock occurred an hour later. The vibrations were from east to west. No damage resulted.—*San Francisco Chronicle*, June 21.

SANTA CRUZ, June 20.—Two heavy earthquakes were felt here this noon. The first shock was unusually heavy and long and passed from north to south, at 12.03 p. m. It gave the people great fright but no damage resulted. The second shock was not so noticeable and occurred shortly afterwards.—*San Francisco Examiner*, June 21.

1897. June 20; Templeton; 12.15 p. m.

TEMPLETON, June 20.—There was a lively earthquake to-day at 12.15 p. m. The shock lasted ten seconds, but no damage resulted.—*San Francisco Chronicle*, June 21.

1897. June 20; Monterey.

MONTEREY, June 20.—A heavy earthquake shock was felt at noon to-day. It caused a panic in the congregation of the San Carlos Mission Church. A portion of the adobe wall was thrown down among the frightened worshipers and several fainted. Other damage resulted to historic adobe buildings. Many people were completely terrified. At Del Monte three distinct shocks were felt, preceded by a rumbling noise. The hotel creaked and swayed and guests rushed from their rooms. Pictures and glassware were thrown down.—*San Francisco Chronicle*, June 21.

1897. June 20; Pacific Grove; 12.15 p. m.

PACIFIC GROVE, June 20.—A decided earthquake shock was felt here at 12.15 p. m. The shock continued several minutes, preceded by a deep rumbling noise. A panic was threatened among the congregation of the Methodist Church, but was averted by the minister's presence of mind. Persons in all parts of town were terrified.—*San Francisco Chronicle*, June 21.

1897. June 20; Stockton; 12.14 p. m.

STOCKTON, June 20.—A sharp shock of earthquake was felt here at 12.14 o'clock to-day, which seemed to be from northeast to southwest in movement. It was felt in all parts of the city, and caused people to exchange notes of the disturbance over the telephone system. Some declare they heard a rumbling sound just before the vibration.—*San Francisco Chronicle*, June 21.

1897. June 20; Modesto, Newman.

MODESTO, *June 20*.—A sharp shock of earthquake was felt here shortly after noon to-day. Many people in the upper stories of brick buildings ran into the streets in alarm. At Newman, in this county, a brick building of one story was cracked slightly.—San Francisco Chronicle, June 21.

1897. June 20; Merced; 12.13 p. m.

MERCED, *June 20*.—An earthquake shock from southeast to northwest visited Merced at 12.13 o'clock this afternoon, which shook things up for a few seconds. There were two shocks, three or four seconds apart, the last one being the most distinct. It was the worst shock ever experienced at this place, and several people were so frightened that they ran out of their houses. A few clocks were stopped.—San Francisco Chronicle, June 21.

1897. June 20; Visalia; 12.10 p. m.

VISALIA, *June 20*.—Two severe earthquake shocks were felt here to-day at 12.10 o'clock. The vibrations were from west to east. Suspended lamps vibrated for fifteen seconds, houses were shaken, and some people ran out doors. The shock was the most severe felt here in years.—San Francisco Chronicle, June 21.

1897. June 20; Milton; 12.15 p. m.

MILTON, *June 20*.—A distinct shock of earthquake was experienced at this place at 12.15 o'clock to-day. The vibrations were from south to north.—San Francisco Chronicle, June 21.

1897. June 20; Santa Rosa.

SANTA ROSA, *June 20*.—Shortly after noon to-day quite a sharp earthquake was felt here, but no damage was done. People were much frightened by the rattling of doors and windows.—San Francisco Chronicle, June 21.

SANTA ROSA, *June 20*.—A slight shock of earthquake was felt here to-day about noon. The oscillations were from east to west and were very light.—San Jose Mercury, June 21.

1897. June 20; Haywards; 12h. 15m. p. m.

HAYWARDS, *June 20*.—Two well-defined shocks of earthquake occurred here to-day at 12.15 p. m. The vibrations were from southwest to northeast; duration, about three seconds; no damage.—San Francisco Chronicle, June 21.

1897. June 20; Decoto; 12.13, 12.55 p. m.

DECOTO, *June 20*.—Two heavy shocks of earthquake were felt in this section at 12.13 to-day. The vibrations seemed to be from the north to the south. One or two old barns in the neighborhood fell to the ground. There was another shock at 12.55 p. m., lighter than the first two.—San Francisco Chronicle, June 21.

1897. June 20; Sacramento; 12.12 p. m.

SACRAMENTO, *June 20*.—At 12.12 o'clock this noon a very light shock of earthquake was felt in this city. It was from north to south and sufficiently strong to cause some clocks to stop.—San Francisco Chronicle, June 21.

1897. June 20; Watsonville.

WATSONVILLE, *June 20*.—The earthquake shock shortly after noon to-day did some damage to buildings in Watsonville and badly frightened the people of the town. The walls of Peck's Block, in which the Pajaro Valley Bank is located, were so badly cracked that they will probably have to be rebuilt. Windows in all parts of the city rattled during the shock and many panes of glass were broken. The earthquake lasted about ten seconds.—San Jose Mercury, June 21.

WATSONVILLE, *June 20*.—The heaviest earthquake that has visited this place since 1881 was felt to-day. The vibrations were from east to west. Clocks were stopped and a couple of chimneys toppled over, but no great damage was done.—San Francisco Examiner, June 21.

1897. June 20; Hanford.

HANFORD, *June 20*.—An earthquake shock was felt here about 11.15 [12.15?] this morning. The direction was from northwest to southeast. No damage was done.—San Jose Mercury, June 21.

1897. June 20; Not felt at Bakersfield.

BAKERSFIELD, *June 20*.—Nothing whatever was felt of the earthquake which is reported to have been experienced in other parts of the State this afternoon.—San Jose Mercury, June 21.

1897. June 20; San Francisco; 12h. 14m. $\pm$ p. m.

One of the most severe earthquakes that has served to disturb the coast of late years visited San Francisco a few minutes after 12 o'clock yesterday afternoon. There were two distinct shocks, the second following close in the wake of the first, and both lasting for a period that is variously stated at from ten to thirty seconds. The earthquake was particularly noticeable at the city hall. The "temblor" caused all the clocks in the city hall to stop. One of them was left standing for the purpose of recording the exact time at which the convulsion shook the building. The standing clock in the chief's office says the earthquake passed that part of the city at exactly 12.13 o'clock.

As to the exact minute that the earthquake struck the city there is some dispute. Many clocks that were stopped by the shock record the event as happening at 12.14 p. m. and others a minute earlier. At the harbor police station the clock stopped at exactly 12.13.

In many of the churches the big quake created a panicky feeling and interrupted the morning services.

The big shock at 12.14 o'clock yesterday afternoon was not the only shock during the day. It was followed by another and almost imperceptible tremor a minute before 1 o'clock, and Frank W. Edmonds, of the United States Coast and Geodetic Survey, declares that there was a slight shock at 6.37 o'clock yesterday morning.—San Francisco Chronicle, June 21.

1897. June 20; San Francisco—Continued.

SAN FRANCISCO, *June 20*.—A severe earthquake shock shortly after noon to-day caused a mild scare in many of the churches and big buildings throughout the city. There were two distinct shocks less than an hour apart, one about 12.15 and the other a few minutes past 1 p. m.

At the weather bureau, on the tenth floor, two clocks were stopped, one keeping local time, at 12.14, and the other running on Washington time at 3.14. As there is no seismograph or seismoscope in the building, or in fact in the city, no accurate record of the local course of the earthquake was obtainable.

A piece of mortar and stone, weighing 10 or 15 pounds, fell from a corner of the second story of the Schilling Building, on Market street, and struck the sidewalk less than 4 feet from where Tom Williams, of the Examiner, was standing, giving him quite a scare.—San Jose Mercury, June 21.

Frank Edmonds, of the United States Coast and Geodetic Survey, said there was a slight shock at 6.37 a. m., followed by a similar vibration about 12.15 p. m., immediately after which two distinct and very severe shocks were felt. A fifth trembling of the earth brought the temblor's programme to a close at 12.48 p. m.—San Francisco Examiner, June 21.

1897. June 20; Oakland; 12h. 13m. p. m.

A prolonged shock of earthquake was observed here to-day, commencing at 12h. 13m. 9s. p. m., P. s. t., and continuing for at least twenty-five seconds. It was noticed first as a sharp settling of the floor; then came a rumbling sound, followed by a slow, swaying motion, which gradually increased in strength and frequency for about ten seconds, when the maximum was reached. At this time the vibrations were decidedly marked: the house creaked, the windows rattled, and the pictures bumped against the walls. The swing of the chandeliers was in an approximately north and south line. The vibration gradually diminished, until 12h. 13m. 34s., when they could no longer be observed. In a jeweler's shop, about two blocks away, a pendulum clock, which was fastened on a wall running in an east and west direction, had stopped at 12h. 13m. 27s. This clock is usually kept very close to standard time.

The intensity of the shock at its maximum may be estimated at IV, or possibly V, on the Rossi-Forel scale. Two persons report a very faint shock about fifteen minutes later, but it was not observed by me.—Reported by A. H. Babcock.

1897. June 20; Oakland; 12h. 13m. 35s. p. m.

OAKLAND, *June 20*.—The big clocks of the city were stopped at thirteen minutes after the hour of noon to-day by as violent an earthquake as ever visited Oakland. There was no forewarning, and the first anyone knew of the visitation was an undulating

1897. June 20; Oakland—Continued.

motion that swayed tall buildings and played havoc with things of smaller size. The shock probably lasted seven seconds, although it seemed much longer. It was followed by another decided tremor, which, however, was no circumstance to the first. The excitement for a time was great. People ran out of their houses and into the middle of the streets. In all the big churches of the city the congregations were attentively listening to sermons, and the shock abruptly ended several of these services. As far as can be learned there were no windows broken or other actual damage done, although many are complaining that valuable china and glass ware was knocked off of tables and shelves and ruined.

The seismograph at the Chabot Observatory shows that there were three distinct tremors. The direction of the first was from northwest to southeast, while the others were from northeast to southwest. The successive tremors lasted a fraction over eight seconds, and the time recorded at the observatory is 12h. 13m. 35s. The quake was distinctly felt in Berkeley, Alameda, and other towns in the vicinity.—San Francisco Chronicle, June 21.

1897. June 20; Gonzales.

GONZALES, *June 20*.—The heaviest earthquake ever felt in this locality occurred here to-day. The vibrations were from north to south, and lasted for a full quarter of a minute. Clocks were stopped, horses frightened, and a few window panes were broken. For several hours after the quake the water in the Salinas River was quite muddy; an unusual thing at this time of the year.—San Francisco Examiner, June 21.

1897. June 20; Fresno.

FRESNO, *June 20*.—A sharp shock of earthquake passed through this county to-day. The duration is variously estimated at three to ten seconds. In this city the effects were principally felt in the two and three story brick buildings, some of which were shaken in a manner to cause their occupants to rush out into the street. The Hughes Block and the Temple Bar Building were among the structures shaken. No damage is reported, but a general feeling of alarm prevailed. At the residence of T. C. White a vase was thrown to the ground and broken.—San Francisco Examiner, June 21.

1897. June 20; Redwood City.

REDWOOD CITY, *June 20*.—This city was shaken by the earthquake. The shock rang the bell in the dome of the new high-school building and cracked the plaster in a few of the old pioneer buildings.—San Francisco Examiner, June 21.

1897. June 20; San Rafael, 12.14, 12.56 p. m.

SAN RAFAEL, *June 20*.—Two slight earthquake shocks were felt in this city at noon to-day. The first shock, which was a trifle more

1897. June 20; San Rafael—Continued.

severe than the second, was felt about 12.14 noon. The second, which was barely perceptible, was at 12.56. The shocks were felt at Sausalito, Mill Valley, and other Marin County towns.—San Francisco Examiner, June 21.

1897. June 20; Oaxaca, Mexico.

OAXACA, MEXICO, June 20.—Continued earthquake shocks and heavy rains have seriously interrupted telegraphic communications with the Isthmus of Tehuantepec during the past three days.

Advices were received here to-day that the official commissioners sent to the city of Tehuantepec by President Diaz to investigate the reported formation of a volcano and the extent of damages have arrived at their destination, and found the condition of affairs much worse than they had expected. The town of Tehuantepec contained about 7,000 inhabitants, and is completely destroyed as far as houses and buildings are concerned, not one remaining standing. There were a number of substantial and costly buildings in the town. The people are living in tents and in the open air on the outskirts of the place. Earthquake shocks continue to be felt at frequent intervals, and people are terrified. Heavy smoke and other indications of an active volcano to the west of Tehuantepec are no longer visible.—San Francisco Chronicle, June 2.

1897. June 21; Gilroy; 5h. 15m. a. m.

GILROY, June 21.—There was another slight shock of earthquake felt here at 5.15 a. m. to-day.—San Jose Mercury, June 22.

1897. June 21; Salinas.

SALINAS, June 21.—A slight shock of earthquake was reported here just after midnight, but there was no damage done. By yesterday's shock the walls of the court room in the court-house and of the county jail were spread nearly an inch. The old Salinas hotel, adjoining the new building, has several wide fissures extending its entire length. The rear of the armory, occupied by Troop C, is badly cracked and the plastering is well shaken off.—San Francisco Examiner, June 22.

1897. June 24; Santa Barbara; 6h. 10m. a. m.

SANTA BARBARA, June 24.—A slight earthquake shock was felt here at 6.10 o'clock. The shock was strong enough to rattle the doors and windows.—San Jose Mercury, June 25.

SANTA BARBARA, June 24.—The citizen of this place were aroused from their slumbers this morning by a slight earthquake. It lasted about three seconds, and caused windows and doors to rattle.—San Francisco Chronicle, June 25.

1897. June 26; Mexico.

OAXACA, MEXICO, June 26.—Severe earthquake shocks have continued at intervals of a few hours during the past three days at

1897. June 26; Mexico—Continued.

Tehuantepec, and as far east as San Cristobal. No further damage is reported, but the inhabitants are in a state of terror. The Indians of the Isthmus of Tehuantepec are fleeing into the valleys.—San Jose Mercury, June 27.

1897. June —, Sawmill Peak, Butte County.

CHICO, *June 30.*—Interest in the results of the remarkable earthquake which swept away a large portion of Sawmill Peak continues. The excitement along the ridge has received fresh impetus from facts developed by recent investigations. It was a formidable undertaking to determine the extent of the landslide, as the peak on the side rent by the earthquake was almost inaccessible. It rises nearly perpendicularly from the west branch. The shifting lava beds, toppling rocks, and loosened trees render exploration hazardous, but a party of mining men, led by Floyd Taber, of Oroville, have been at the scene and made an examination of the ground. The party found a newly made chasm on the south side of the mountain, 60 feet deep and 300 feet square. The mountain is of volcanic formation. It is conjectured that Sunday's rumblings were but the forerunner of volcanic disturbances which may occur at any moment.

The descent into the chasm, owing to the insecure lava masses, the steep incline from the summit, and the danger from loose rocks, could not be accomplished by the exploring party. A. J. Lawrence, one of the explorers was not to be turned back, however. He fastened a rope around his waist and was lowered by his companions into the hole. There he found great masses of lava and rocks.—San Francisco Examiner, July 1.

This report has not been verified.—C. D. P.

1897. June —; Douglas Island, Alaska.

TACOMA, WASH., *July 4.*—Alaska papers of June 26 received to-day state that the volcano on Douglas Island, opposite Juneau, is in a state of eruption. The event caused considerable excitement, and the entire town of Juneau was watching with interest the immense clouds emitted from the crater. This volcano has no name, but is one of the highest peaks on Douglas Island and is situated a little north of the Treadwell mines.—San Francisco Chronicle.

1897. July 19; Santa Barbara; 11h. 45m. p. m.

SANTA BARBARA, *July 20.*—This city experienced two strong shocks of earthquake last night about 11.45 o'clock. The first shock lasted about four seconds and was undulating in character. The second was much stronger, but of shorter duration. The oscillations caused the old town clock bell to strike. No damage was done.—San Francisco Chronicle.

SANTA BARBARA, *July 20.*—Two shocks of earthquake were felt here last night about midnight. There was an interval of twelve minutes between the first and second shock. The first was wavy

1897. July 19; Santa Barbara—Continued.

in character, while the second had an up-and-down motion. Both shocks appeared to have had a southwesterly direction. No damage was done. Those who have lived here for many years state that it was the strongest earthquake they ever experienced in Santa Barbara.—San Francisco Call.

1897. July 26; Mount Hamilton, 5h. 40m. 50s. p. m., P. s. t.

R. F. III.—E. S. Holden.

The duplex seismograph shows a small mark, which, however, resembles "creeping" of the pen more than an earthquake.

1897. July 26; San Francisco; 5h. 40m. 35s. p. m., P. s. t.

At 530 California street, on Monday at 5h. 40m. 35s. P. s. t., we felt the earthquake. It lasted about two and a half seconds. Tom and I were leaning on the drafting table, and I can not tell direction of shock—probably east and west.—Reported by George Davidson.

1897. July 26; Alameda.

Mr. Perrine's seismograph gives a record of this shock which, however, was very light, only one or two irregular, short waves.

1897. July 26; San Francisco.

There was a sharp, short, and heavy shock of earthquake at 5.40 o'clock last evening, preceded by a low, rumbling sound, that caused many people to think that there had been an explosion in one of the powder mills across the bay. The shock alarmed the nervous ones, and they sought safety by going into the streets. Although the heaviest and strongest buildings in the city trembled, no damage was reported. The rumbling noise that heralded the earthquake was particularly noticeable in the resident portions of the city. In the commercial center and along the principal thoroughfares, the noise was drowned by the clanging of car bells and the rattling of heavy teams over the pavement. Although people in the business quarter did not hear the noise, they all experienced the shock. The atmosphere was close and the sky partly obscured by fog when the shock occurred.

"The earthquake," said Local Forecast Official McAdie, of the Weather Bureau, "was due to the surface of the earth drying up and cracking like the skin on an apple. There was no atmospheric disturbance, either before or after it. The clock in the Weather Bureau office registered the time at forty minutes and thirty-five seconds past 5 o'clock when the earth began to rock. I was on the roof of the Mills Building at the time and distinctly felt the shock. It lasted about two seconds. The building moved up and down. I at first thought that one of the powder magazines at Pinole had blown up, and looked in that direction, half expecting to see a cloud of smoke. The building moved as if some heavy weight had been dropped on the floors. It was a quick, jerky motion, but the shock was not as heavy as that on June 20 last, when considerable damage was done in the interior of the State."—San Francisco Examiner, July 27.

1897. July 26; Berkeley; 5.42 p. m.

BERKELEY, *July 26*.—A slight earthquake shock was felt here at 5.42 this afternoon. The vibrations were east and west. No damage was done.—San Francisco Call.

1897. July 26; Oakland.

OAKLAND, *July 26*.—There was very little shock felt here of the earthquake this afternoon. At the Chabot Observatory the instruments showed only a slight mark on the plate, and nothing of any consequence was recorded.—San Francisco Call.

1897. September 27; Olympia, Washington; 1h. 30m. a. m.

OLYMPIA, WASHINGTON, *September 27*.—A slight shock of earthquake was felt here this morning at 1.30 o'clock. The vibrations were of sufficient force to awaken sound sleepers. No damage reported.—San Jose Mercury, September 28.

1897. October 2; College Park; 8h. 41m. 57.3s. a. m., P. s. t.

Earthquake shock preceded by rumble. Shock was quite marked, especially on upper floors of buildings.—Reported by H. D. Curtis.

1897. October 2; San Francisco; 8h. 42m. a. m.

At eighteen minutes before 9 o'clock yesterday morning a moderately sharp shock of earthquake was felt in this city by residents of the western addition, although it did not seem to make much of an impression on the down-town buildings. Mr. William M. Pierson, who is a Fellow of the Royal Astronomical Society of London and past president of the Astronomical Society of the Pacific, is authority for the exact time. At his residence on Van Ness avenue Mr. Pierson felt the shock, and with the instinct of a trained observer noted the exact time. To him, as to others in the residence quarter, the direction seemed to be about north and south. Chandeliers were vibrated in that general direction, and the force would be about II on the Rossi-Forrel scale.—San Francisco Examiner, October 3.

1897. October 2; Alma; 8h. 45m. a. m.

ALMA, *October 2*.—A strong shock of earthquake was felt here at 8.45 this morning. It lasted ten seconds. There was no damage.—San Francisco Examiner, October 3.

1897. October 2; Santa Cruz; 8h. 45m. a. m.

SANTA CRUZ, *October 2*.—An earthquake shock was felt at 8.45 this morning. Vibrations were east and west.—San Francisco Examiner, October 3.

1897. October 5; Stockton; 7h. 44m. p. m.

STOCKTON, *October 5*.—This city had a slight shock of earthquake this evening at 7.44. Many people felt the shock, and in some places chandeliers shook perceptibly.—San Jose Mercury, October 6.

1897. October 17; Mount Hamilton; 3h. 30m. 26-21s. p. m., P. s. t.

Three irregular jolts nearly north and south, lasting five seconds. Loose windows rattled. R.-F. III.—C. D. P.

1897. October 17; Mount Hamilton—Continued.

The shock was recorded by the duplex seismograph as almost entirely northeast and southwest, the magnified record in this direction being 2.3 mm.; at right angles to this the record is 1 mm.

1897. October 17; San Jose; 3h. 30m. p. m.

SAN JOSE, *October 17*.—A slight shock of earthquake was felt here at 3.30 o'clock this afternoon. There were irregular vibrations lasting some seconds, the motion being from northeast to southwest. No damage was done.—San Francisco Examiner, October 18.

1897. November 21; Randsburg; 11.30 a. m., 12.30 p. m.

RANDBURG, *November 21*.—Two very distinct earthquakes have been felt here to-day, the first at 11.20 o'clock and the next an hour later. The vibrations were from north to south. Buildings shook perceptibly, but no damage was done.—San Jose Mercury, November 22.

1897. December 6; Forest Grove, Oregon; 8.30 p. m.

Slight shock.—Monthly Weather Review, December, 1897.

1897. December 10; Mount Hamilton.

Slight shock felt by several persons between midnight and daylight. Time not taken. Barely a trace on the duplex seismograph. Did not start the Ewing instrument.

1897. December 15; Waterville, Washington.

Duration, four to six seconds; direction, northwest to southeast.

1897. December 15; Lakeside, Washington.

A severe shock.—Monthly Weather Review, December, 1897.

1897. December 16, 17, 20; Lakeside, Washington.

Light shocks, all occurring at 6 a. m., vibrating from west to east.—Monthly Weather Review, December, 1897.

1897. December 23; Mills College; 5h. 15m. a. m.

Distinct shock of earthquake.—Reported by Josiah Keep.

1897. December 26; Centerville; 7.06 a. m.

Duration, five seconds; direction, north to south.—Monthly Weather Review, December, 1897.

In 1897 there were twenty-five shocks of earthquake recorded in California, as against sixteen for the year 1896.

The shock of June 20 was accurately timed both at Mount Hamilton and Oakland, and as we know approximately the center from which the disturbance radiated, we can obtain the velocity over this part of its path. At Mount Hamilton the beginning was noted at 12h. 12m. 56s., P. s. t., by several observers, and Mr. Babcock obtained 12h. 13m. 9s., P. s. t., as the time of the same phase in Oakland, an interval of thirteen seconds.

Assuming the epicentrum to have been between San Juan and Salinas, we find Mount Hamilton to be 40 miles from this point, while Oakland is 80 miles. As both points lie nearly in the same direction

from the origin of the disturbance (differing only 20'), we may assume that the disturbance moved toward both stations with the same velocity. From this data we find the velocity between Mount Hamilton and Oakland to be 3.1 miles per second.

This is an unusually high velocity, and in this connection it will be interesting to note the intervals in the cases of other shocks which have been timed with sufficient accuracy.

	Seconds.
1889. July 31; Lick Observatory; East Oakland	+ 11
July 31; Lick Observatory; San Francisco	+ 7
1890. April 24; San Francisco; San Jose (U. P.)	+ 40
May 11; San Francisco; East Oakland	± 0
1891. January 2; Lick Observatory; San Francisco	- 22
January 2; Lick Observatory; San Jose	- 12
June 28; Lick Observatory; San Francisco	- 10
October 11; San Francisco; Oakland	- 17
1892. April 19; Lick Observatory; Carson, Nev.	- 70 ±
April 21; San Francisco; Reno, Nev.	- 107
1896. July 26; Lick Observatory; San Francisco	+ 15

The April, 1892, shocks had their origin in the great Central Valley of California, and we may safely take a point near Vacaville as the epicentrum of both disturbances. Assuming that the velocity was the *same at equal distances from this point*, we find for the shock of April 19, an average velocity of 0.8 mile per second for a distance of 56 miles from Carson, Nev., measured toward the center of disturbance. The interval of time of seventy seconds is somewhat uncertain, perhaps ten or fifteen seconds. For the shock of April 21 we deduce an average velocity of 0.8 mile between Reno and a point 90 miles distant toward the center of disturbance. There are no accurate times available at or near the epicentrum of these two shocks. The centers of disturbance for the other cases are entirely too uncertain to base any velocities upon.



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[Bulletin 155.]

The statute approved March 3, 1879, establishing the United States Geological Survey, contains the following provisions:

"The publications of the Geological Survey shall consist of the annual report of operations, geological and economic maps illustrating the resources and classification of the lands, and reports upon general and economic geology and paleontology. The annual report of operations of the Geological Survey shall accompany the annual report of the Secretary of the Interior. All special memoirs and reports of said Survey shall be issued in uniform quarto series if deemed necessary by the Director, but otherwise in ordinary octavos. Three thousand copies of each shall be published for scientific exchanges and for sale at the price of publication; and all literary and cartographic materials received in exchange shall be the property of the United States and form a part of the library of the organization; and the money resulting from the sale of such publications shall be covered into the Treasury of the United States."

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74. The Minerals of North Carolina, by Frederick Augustus Genth. 1891. 8°. 119 pp. Price 15 cents.
75. Record of North American Geology for 1887 to 1889, inclusive, by Nelson Horatio Darton. 1891. 8°. 173 pp. Price 15 cents.
76. A Dictionary of Altitudes in the United States (Second Edition), compiled by Henry Gannett, Chief Topographer. 1891. 8°. 393 pp. Price 25 cents. (Exhausted.)
77. The Texan Permian and its Mesozoic Types of Fossils, by Charles A. White. 1891. 8°. 51 pp. 4 pl. Price 10 cents.
78. A Report of Work done in the Division of Chemistry and Physics, mainly during the Fiscal Year 1889-'90. F. W. Clarke, Chief Chemist. 1891. 8°. 131 pp. Price 15 cents.
79. A Late Volcanic Eruption in Northern California and its Peculiar Lava, by J. S. Diller. 1891. 8°. 33 pp. 17 pl. Price 10 cents.
80. Correlation Papers—Devonian and Carboniferous, by Henry Shaler Williams. 1891. 8°. 279 pp. Price 20 cents.
81. Correlation Papers—Cambrian, by Charles Doolittle Walcott. 1891. 8°. 447 pp. 3 pl. Price 25 cents.
82. Correlation Papers—Cretaceous, by Charles A. White. 1891. 8°. 273 pp. 3 pl. Price 20 cents.
83. Correlation Papers—Eocene, by William Bullock Clark. 1891. 8°. 173 pp. 2 pl. Price 15 cents.
84. Correlation Papers—Neocene, by W. H. Dall and G. D. Harris. 1892. 8°. 349 pp. 3 pl. Price 25 cents.
85. Correlation Papers—The Newark System, by Israel Cook Russell. 1892. 8°. 344 pp. 13 pl. Price 25 cents.
86. Correlation Papers—Azoic and Algonkian, by C. R. Van Hise. 1892. 8°. 549 pp. 12 pl. Price 25 cents.
87. A Synopsis of American Fossil Brachiopoda, including Bibliography and Synonymy, by Charles Schuchert. 1897. 8°. 464 pp. 1 pl. Price 30 cents.
88. The Cretaceous Foraminifera of New Jersey, by Rufus Mather Bagg, Jr. 1898. 8°. 89 pp. 6 pl. Price 10 cents.
89. Some Lava Flows of the Western Slope of the Sierra Nevada, California, by F. Leslie Ransome. 1898. 8°. 74 pp. 11 pl. Price 15 cents.
90. A Report of Work done in the Division of Chemistry and Physics, mainly during the Fiscal Year 1890-'91. F. W. Clarke, Chief Chemist. 1892. 8°. 77 pp. Price 10 cents.
91. Record of North American Geology for 1890, by Nelson Horatio Darton. 1891. 8°. 88 pp. Price 10 cents.
92. The Compressibility of Liquids, by Carl Barus. 1892. 8°. 96 pp. 29 pl. Price 10 cents.
93. Some Insects of Special Interest from Florissant, Colorado, and Other Points in the Tertiary of Colorado and Utah, by Samuel Hubbard Scudder. 1892. 8°. 35 pp. 3 pl. Price 5 cents.
94. The Mechanism of Solid Viscosity, by Carl Barus. 1892. 8°. 138 pp. Price 15 cents.
95. Earthquakes in California in 1890 and 1891, by Edward Singleton Holden. 1892. 8°. 31 pp. Price 5 cents.
96. The Volume Thermodynamics of Liquids, by Carl Barus. 1892. 8°. 100 pp. Price 10 cents.
97. The Mesozoic Echinodermata of the United States, by William Bullock Clark. 1893. 8°. 207 pp. 50 pl. Price 20 cents.
98. Flora of the Outlying Carboniferous Basins of Southwestern Missouri, by David White. 1893. 8°. 139 pp. 5 pl. Price 15 cents.

99. Record of North American Geology for 1891, by Nelson Horatio Darton. 1892. 8°. 73 pp. Price 10 cents.
100. Bibliography and Index of the Publications of the U. S. Geological Survey, 1879-1892, by Philip Creveling Warman. 1893. 8°. 495 pp. Price 25 cents.
101. Insect Fauna of the Rhode Island Coal Field, by Samuel Hubbard Scudder. 1893. 8°. 27 pp. 2 pl. Price 5 cents.
102. A Catalogue and Bibliography of North American Mesozoic Invertebrata, by Cornelius Breckinridge Boyle. 1893. 8°. 315 pp. Price 25 cents.
103. High Temperature Work in Igneous Fusion and Ebullition, chiefly in Relation to Pressure, by Carl Barus. 1893. 8°. 57 pp. 9 pl. Price 10 cents.
104. Glaciation of the Yellowstone Valley north of the Park, by Walter Harvey Weed. 1893. 8°. 41 pp. 4 pl. Price 5 cents.
105. The Laramie and the Overlying Livingston Formation in Montana, by Walter Harvey Weed, with Report on Flora, by Frank Hall Knowlton. 1893. 8°. 68 pp. 6 pl. Price 10 cents.
106. The Colorado Formation and its Invertebrate Fauna, by T. W. Stanton. 1893. 8°. 288 pp. 45 pl. Price 20 cents.
107. The Trap Dikes of the Lake Champlain Region, by James Furman Kemp and Vernon Freeman Marsters. 1893. 8°. 62 pp. 4 pl. Price 10 cents.
108. A Geological Reconnaissance in Central Washington, by Israel Cook Russell. 1893. 8°. 108 pp. 12 pl. Price 15 cents.
109. The Eruptive and Sedimentary Rocks on Pigeon Point, Minnesota, and their Contact Phenomena, by William Shirley Bayley. 1893. 8°. 121 pp. 16 pl. Price 15 cents.
110. The Paleozoic Section in the Vicinity of Three Forks, Montana, by Albert Charles Peale. 1893. 8°. 56 pp. 6 pl. Price 10 cents.
111. Geology of the Big Stone Gap Coal Field of Virginia and Kentucky, by Marius R. Campbell. 1893. 8°. 106 pp. 6 pl. Price 15 cents.
112. Earthquakes in California in 1892, by Charles D. Perrine. 1893. 8°. 57 pp. Price 10 cents.
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115. A Geographic Dictionary of Rhode Island, by Henry Gannett. 1894. 8°. 31 pp. Price 5 cents.
116. A Geographic Dictionary of Massachusetts, by Henry Gannett. 1894. 8°. 126 pp. Price 15 cents.
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120. The Devonian System of Eastern Pennsylvania and New York, by Charles S. Prosser. 1895. 8°. 81 pp. 2 pl. Price 10 cents.
121. A Bibliography of North American Paleontology, by Charles Rollin Keyes. 1894. 8°. 251 pp. Price 20 cents.
122. Results of Primary Triangulation, by Henry Gannett. 1894. 8°. 412 pp. 17 pl. Price 25 cents.
123. A Dictionary of Geographic Positions, by Henry Gannett. 1895. 8°. 183 pp. 1 pl. Price 15 cents.
124. Revision of North American Fossil Cockroaches, by Samuel Hubbard Scudder. 1895. 8°. 176 pp. 12 pl. Price 15 cents.
125. The Constitution of the Silicates, by Frank Wigglesworth Clarke. 1895. 8°. 109 pp. Price 15 cents.
126. A Mineralogical Lexicon of Franklin, Hampshire, and Hampden Counties, Massachusetts, by Benjamin Kendall Emerson. 1895. 8°. 180 pp. 1 pl. Price 15 cents.
127. Catalogue and Index of Contributions to North American Geology, 1732-1891, by Nelson Horatio Darton. 1896. 8°. 1045 pp. Price 60 cents.
128. The Bear River Formation and its Characteristic Fauna, by Charles A. White. 1895. 8°. 108 pp. 11 pl. Price 15 cents.
129. Earthquakes in California in 1894, by Charles D. Perrine. 1895. 8°. 25 pp. Price 5 cents.
130. Bibliography and Index of North American Geology, Paleontology, Petrology, and Mineralogy for 1892 and 1893, by Fred Boughton Weeks. 1896. 8°. 210 pp. Price 20 cents.
131. Report of Progress of the Division of Hydrography for the Calendar Years 1893 and 1894, by Frederick Haynes Newell, Topographer in Charge. 1895. 8°. 126 pp. Price 15 cents.
132. The Disseminated Lead Ores of Southeastern Missouri, by Arthur Winslow. 1896. 8°. 31 pp. Price 5 cents.
133. Contributions to the Cretaceous Paleontology of the Pacific Coast: The Fauna of the Knoxville Beds, by T. W. Stanton. 1895. 8°. 132 pp. 20 pl. Price 15 cents.
134. The Cambrian Rocks of Pennsylvania, by Charles Doolittle Walcott. 1896. 8°. 43 pp. 15 pl. Price 5 cents.
135. Bibliography and Index of North American Geology, Paleontology, Petrology, and Mineralogy for the Year 1894, by F. B. Weeks. 1896. 8°. 141 pp. Price 15 cents.
136. Volcanic Rocks of South Mountain, Pennsylvania, by Florence Bascom. 1896. 8°. 124 pp. 28 pl. Price 15 cents.

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137. The Geology of the Fort Riley Military Reservation and Vicinity, Kansas, by Robert Hay. 1896. 8°. 35 pp. 8 pl. Price 5 cents.
138. Artesian-Well Prospects in the Atlantic Coastal Plain Region, by N. H. Darton. 1896. 8°. 228 pp. 19 pl. Price 20 cents.
139. Geology of the Castle Mountain Mining District, Montana, by W. H. Weed and L. V. Pirsson. 1896. 8°. 164 pp. 17 pl. Price 15 cents.
140. Report of Progress of the Division of Hydrography for the Calendar Year 1895, by Frederick Haynes Newell, Hydrographer in Charge. 1896. 8°. 356 pp. Price 25 cents.
141. The Eocene Deposits of the Middle Atlantic Slope in Delaware, Maryland, and Virginia, by William Bullock Clark. 1896. 8°. 167 pp. 40 pl. Price 15 cents.
142. A Brief Contribution to the Geology and Paleontology of Northwestern Louisiana, by T. Wayland Vaughan. 1896. 8°. 65 pp. 4 pl. Price 10 cents.
143. A Bibliography of Clays and the Ceramic Arts, by John C. Branner. 1896. 8°. 114 pp. Price 15 cents.
144. The Moraines of the Missouri Coteau and their Attendant Deposits, by James Edward Todd. 1896. 8°. 71 pp. 21 pl. Price 10 cents.
145. The Potomac Formation in Virginia, by W. M. Fontaine. 1896. 8°. 149 pp. 2 pl. Price 15 cents.
146. Bibliography and Index of North American Geology, Paleontology, Petrology, and Mineralogy for the Year 1895, by F. B. Weeks. 1896. 8°. 130 pp. Price 15 cents.
147. Earthquakes in California in 1895, by Charles D. Perrine, Assistant Astronomer in Charge of Earthquake Observations at the Lick Observatory. 1896. 8°. 23 pp. Price 5 cents.
148. Analyses of Rocks, with a Chapter on Analytical Methods, Laboratory of the United States Geological Survey, 1880 to 1896, by F. W. Clarke and W. F. Hillebrand. 1897. 8°. 306 pp. Price 20 cents.
149. Bibliography and Index of North American Geology, Paleontology, Petrology, and Mineralogy for the Year 1896, by Fred Boughton Weeks. 1897. 8°. 152 pp. Price 15 cents.
150. The Educational Series of Rock Specimens Collected and Distributed by the United States Geological Survey, by Joseph Silas Diller. 1898. 8°. 400 pp. 47 pl. Price 25 cents.
151. The Lower Cretaceous Gryphaea of the Texas Region, by R. T. Hill and T. Wayland Vaughan. 1898. 8°. 139 pp. 35 pl. Price 15 cents.
152. A Catalogue of the Cretaceous and Tertiary Plants of North America, by F. H. Knowlton. 1898. 8°. 247 pp. Price 20 cents.
153. A Bibliographic Index of North American Carboniferous Invertebrates, by Stuart Weller. 1898. 8°. 653 pp. Price 35 cents.
154. A Gazetteer of Kansas, by Henry Gannett. 1898. 8°. 246 pp. 6 pl. Price 20 cents.
155. Earthquakes in California in 1896 and 1897, by Charles D. Perrine, Assistant Astronomer in Charge of Earthquake Observations at the Lick Observatory. 1898. 8°. 47 pp. Price 5 cents.
156. Bibliography and Index of North American Geology, Paleontology, Petrology, and Mineralogy for the Year 1897, by Fred Boughton Weeks. 1898. 8°.

WATER-SUPPLY AND IRRIGATION PAPERS.

By act of Congress approved June 11, 1896, the following provision was made:

"Provided, That hereafter the reports of the Geological Survey in relation to the gauging of streams and to the methods of utilizing the water resources may be printed in octavo form, not to exceed one hundred pages in length and five thousand copies in number; one thousand copies of which shall be for the official use of the Geological Survey, one thousand five hundred copies shall be delivered to the Senate, and two thousand five hundred copies shall be delivered to the House of Representatives, for distribution."

Under this law the following papers have been published:

1. Pumping Water for Irrigation, by Herbert M. Wilson. 1896. 8°. 57 pp. 9 pl.
2. Irrigation near Phoenix, Arizona, by Arthur P. Davis. 1897. 8°. 97 pp. 31 pl.
3. Sewage Irrigation, by George W. Rafter. 1897. 8°. 100 pp. 4 pl.
4. A Reconnaissance in Southeastern Washington, by Israel Cook Russell. 1897. 8°. 96 pp. 7 pl.
5. Irrigation Practice on the Great Plains, by Elias Branson Cowgill. 1897. 8°. 39 pp. 12 pl.
6. Underground Waters of Southwestern Kansas, by Erasmus Haworth. 1897. 8°. 65 pp. 12 pl.
7. Seepage Waters of Northern Utah, by Samuel Fortier. 1897. 8°. 50 pp. 3 pl.
8. Windmills for Irrigation, by E. C. Murphy. 1897. 8°. 49 pp. 8 pl.
9. Irrigation near Greeley, Colorado, by David Boyd. 1897. 8°. 90 pp. 21 pl.
10. Irrigation in Mesilla Valley, New Mexico, by F. C. Barker. 1898. 8°. 51 pp. 11 pl.
11. River Heights for 1896, by Arthur P. Davis. 1897. 8°. 100 pp.
12. Water Resources of Southeastern Nebraska, by Nelson H. Darton. 1898. 8°. 56 pp. 21 pl.
13. Irrigation Systems in Texas, by William Ferguson Hutson. 1898. 8°. 67 pp. 10 pl.
14. New Tests of Certain Pumps and Water-Lifts used in Irrigation, by Ozni P. Hood. 1898. 8°. 91 pp. 1 pl.
15. Operations at River Stations, 1897, Part I. 1898. 8°. 100 pp.
16. Operations at River Stations, 1897, Part II. 1898. 8°. 101-200 pp.

TOPOGRAPHIC MAP OF THE UNITED STATES.

When, in 1882, the Geological Survey was directed by law to make a geologic map of the United States, there was in existence no suitable topographic map to serve as a base for the geologic map. The preparation of such a topographic map was therefore immediately begun. About one-fifth of the area of the country, excluding Alaska, has now been thus mapped. The map is published in atlas sheets. Under the plan adopted the entire area of the country is divided into small quadrangular districts (designated *quadrangles*), bounded by certain meridians and parallels. The unit of survey is also the unit of publication. The separate sheets are sold at 5 cents each when fewer than 100 copies are purchased, but when they are ordered in lots of 100 or more copies, whether of the same sheet or of different sheets, the price is 2 cents each. The mapped areas are widely scattered, nearly every State being represented. More than 900 sheets have been engraved and printed; they are tabulated by States in the Survey's "List of Publications," a pamphlet which may be had on application.

The map sheets represent a great variety of topographic features, and with the aid of descriptive text they can be used to illustrate topographic forms. This has led to the projection of an educational series of topographic folios, for use wherever geography is taught in high schools, academies, and colleges. Of this series the first folio has been issued, viz:

1. Physiographic types, by Henry Gannett, 1898, folio, consisting of the following sheets and 4 pages of descriptive text: Fargo (N. Dak.-Minn.), a region in youth; Charleston (W. Va.), a region in maturity; Caldwell (Kans.), a region in old age; Palmyra (Va.), a rejuvenated region; Mount Shasta (Cal.), a young volcanic mountain; Eagle (Wis.), moraines; Sun Prairie (Wis.), drumlins; Donaldsonville (La.), river flood plains; Boothbay (Me.), a fiord coast; Atlantic City (N. J.), a barrier-beach coast.

GEOLOGIC ATLAS OF THE UNITED STATES.

The Geologic Atlas of the United States is the final form of publication of the topographic and geologic maps. The atlas is issued in parts, or folios, progressively as the surveys are extended, and is designed ultimately to cover the entire country.

Each folio contains topographic, geologic, economic, and structural maps, together with textual descriptions and explanations, and is designated by the name of a principal town or of a prominent natural feature within the district.

Two forms of issue have been adopted, a "library edition" and a "field edition." In both the sheets are bound between heavy paper covers, but the library copies are permanently bound, while the sheets and covers of the field copies are only temporarily wired together.

Under the law a copy of each folio is sent to certain public libraries and educational institutions. The remainder are sold at 25 cents each, except such as contain an unusual amount of matter, which are priced accordingly. Prepayment is obligatory. The folios ready for distribution are listed below.

No.	Name of sheet.	State.	Limiting meridians.	Limiting parallels.	Area, in square miles.	Price, in cents.
1	Livingston	Montana..	110°-111°	45°-46°	3,354	25
2	Ringgold	Georgia..	85°-85° 30'	34° 30'-35°	980	25
3	Placerville	Tennessee	120° 30'-121°	38° 30'-39°	932	25
4	Kingston	Tennessee	84° 30'-85°	35° 30'-36°	969	25
5	Sacramento	California.	121°-121° 30'	38° 30'-39°	932	25
6	Chattanooga	Tennessee	85°-85° 30'	35°-35° 30'	975	25
7	Pikes Peak	Colorado..	105°-105° 30'	38° 30'-39°	932	25
8	Sewanee	Tennessee	85° 30'-86°	35°-35° 30'	975	25
9	Anthracite-Created Butte.	Colorado..	106° 45'-107° 15'	38° 45'-39°	466	50
10	Harpers Ferry.....	Virginia..	77° 30'-78°	39°-39° 30'	925	25
11	Jackson	West Va..	120° 30'-121°	38°-38° 30'	938	25
12	Estillville	Maryland.	82° 30'-83°	36° 30'-37°	957	25
13	Fredericksburg.....	Kentucky.	77°-77° 30'	38°-38° 30'	938	25
14	Staunton	Maryland.	79°-79° 30'	38°-38° 30'	938	25
15	Lassen Peak.....	West Va..	121°-122°	40°-41°	3,634	25
16	Knoxville	California.	83° 30'-84°	40°-41°	3,634	25
17	Marysville	Tennessee	121° 30'-122°	39°-39° 30'	925	25
18	Smartsville	N. Carolina	121°-121° 30'	39°-39° 30'	925	25
19	Stevenson	California.	121°-121° 30'	39°-39° 30'	925	25
20	Cleveland	Alabama..	85° 30'-86°	34° 30'-35°	980	25
21	Pikeville	Georgia..	85° 30'-86°	34° 30'-35°	980	25
22	McMinnville	Tennessee	84° 30'-85°	35°-35° 30'	975	25
23	Nomini	Tennessee	85°-85° 30'	35° 30'-36°	969	25
24	Three Forks.....	Tennessee	85° 30'-86°	35° 30'-36°	969	25
25		Maryland.	76° 30'-77°	38°-38° 30'	938	25
26		Virginia..	76° 30'-77°	38°-38° 30'	938	25
27		Montana..	111°-112°	45°-46°	3,354	50

* Out of stock.

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26	Pocahontas	Virginia ..	81°-81° 30'	37°-37° 30'	951	25
27	Morristown	West Va. }	83°-83° 30'	36°-36° 30'	963	25
28	Piedmont	Tennessee }	79°-79° 30'	39°-39° 30'	925	25
		Virginia ..				
		Maryland }				
		West Va. }				
29	Nevada City:					
	Nevada City		121° 00' 25"-121° 03' 45"	39° 13' 50"-39° 17' 16"	11.65	50
	Grass Valley	California.	121° 01' 35"-121° 05' 04"	39° 10' 22"-39° 13' 50"	12.09	
	Banner Hill		120° 57' 06"-121° 00' 25"	39° 13' 50"-39° 17' 16"	11.65	
30	Yellowstone National Park:					
	Gallatin					
	Canyon	Wyoming.	110°-111°	44°-45°	3,412	75
	Shoshone					
	Lake					
31	Pyramid Peak	California.	120°-120° 30'	38° 30'-39°	932	25
32	Franklin	Virginia ..	79°-79° 30'	38° 30'-39°	932	25
		West Va. }				
33	Briceville	Tennessee	84°-84° 30'	36°-36° 30'	963	25
34	Buckhannon	West Va. }	80°-80° 30'	38° 30'-39°	932	25
35	Gadsden	Alabama	86°-86° 30'	34°-34° 30'	966	25
36	Pueblo	Colorado ..	104° 30'-105°	38°-38° 30'	938	50
37	Downieville	California.	120° 30'-121°	39° 30'-40°	919	25
38	Butte Special	Montana ..	112° 29' 30"-112° 38' 42"	45° 59' 28"-46° 02' 54"	22.80	50
39	Truckee	California.	120°-120° 30'	39°-39° 30'	925	25
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41	Sonora	California.	120°-120° 30'	37° 30'-38°	944	25

STATISTICAL PAPERS.

Mineral Resources of the United States, 1882, by Albert Williams, jr. 1883. 8°. xvii, 813 pp. Price 50 cents.

Mineral Resources of the United States, 1883 and 1884, by Albert Williams, jr. 1885. 8°. xiv, 1016 pp. Price 60 cents.

Mineral Resources of the United States, 1885. Division of Mining Statistics and Technology. 1886. 8°. vii, 576 pp. Price 40 cents.

Mineral Resources of the United States, 1886, by David T. Day. 1887. 8°. viii, 813 pp. Price 50 cents.

Mineral Resources of the United States, 1887, by David T. Day. 1888. 8°. vii, 832 pp. Price 50 cents.

Mineral Resources of the United States, 1888, by David T. Day. 1890. 8°. vii, 652 pp. Price 50 cents.

Mineral Resources of the United States, 1889 and 1890, by David T. Day. 1892. 8°. viii, 671 pp. Price 50 cents.

Mineral Resources of the United States, 1891, by David T. Day. 1893. 8°. vii, 630 pp. Price 50 cents.

Mineral Resources of the United States, 1892, by David T. Day. 1893. 8°. vii, 850 pp. Price 50 cents.

Mineral Resources of the United States, 1893, by David T. Day. 1894. 8°. viii, 810 pp. Price 50 cents.

On March 2, 1895, the following provision was included in an act of Congress:

"Provided, That hereafter the report of the mineral resources of the United States shall be issued as a part of the report of the Director of the Geological Survey."

In compliance with this legislation the following reports have been published:

Mineral Resources of the United States, 1894, David T. Day, Chief of Division. 1895. 8°. xv, 646 pp., 23 pl.; xix, 735 pp., 6 pl. Being Parts III and IV of the Sixteenth Annual Report.

Mineral Resources of the United States, 1895, David T. Day, Chief of Division. 1896. 8°. xxiii, 542 pp., 8 pl. and maps; iii, 543-1058 pp., 9-13 pl. Being Part III (in 2 vols.) of the Seventeenth Annual Report.

Mineral Resources of the United States, 1896, David T. Day, Chief of Division. 1897. 8°. xii, 642 pp., 1 pl.; 643-1400 pp. Being Part V (in 2 vols.) of the Eighteenth Annual Report.

The report on the mineral resources for the calendar year 1897 will form a part of the Nineteenth Annual Report of the Survey.

The money received from the sale of the Survey publications is deposited in the Treasury, and the Secretary of the Treasury declines to receive bank checks, drafts, or postage stamps; all remittances, therefore, must be by MONEY ORDER, made payable to the Director of the United States Geological Survey, or in CURRENCY—the exact amount. Correspondence relating to the publications of the Survey should be addressed to—

THE DIRECTOR,
UNITED STATES GEOLOGICAL SURVEY,
WASHINGTON, D. C.

WASHINGTON, D. C., August, 1895.

[Take this leaf out and paste the separated titles upon three of your catalogue cards. The first and second titles need no addition; over the third write that subject under which you would place the book in your library.]

LIBRARY CATALOGUE SLIPS.

Series.	United States. <i>Department of the interior. (U. S. geological survey.)</i> Department of the interior — Bulletin of the United States geological survey no. 155 [Seal of the department] Washington government printing office 1898 <i>Second title:</i> United States geological survey Charles D. Wal- cott, director — Earthquakes in California in 1896 and 1897 by Charles D. Perrine assistant astronomer in charge of earth- quake observations at the Lick Observatory [Vignette] Washington government printing office 1898 8°. 47 pp.
Author.	Perrine (Charles D.). United States geological survey Charles D. Walcott, di- rector — Earthquakes in California in 1896 and 1897 by Charles D. Perrine assistant astronomer in charge of earthquake observations at the Lick Observatory [Vignette] Washington government printing office 1898 8°. 47 pp. [UNITED STATES. <i>Department of the interior. (U. S. geological survey.)</i> Bulletin 155.]
Subject.	United States geological survey Charles D. Walcott, di- rector — Earthquakes in California in 1896 and 1897 by Charles D. Perrine assistant astronomer in charge of earthquake observations at the Lick Observatory [Vignette] Washington government printing office 1898 8°. 47 pp. [UNITED STATES. <i>Department of the interior. (U. S. geological survey.)</i> Bulletin 155.]

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UNITED STATES GEOLOGICAL SURVEY

CHARLES D. WALCOTT, DIRECTOR

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OF

NORTH AMERICAN GEOLOGY, PALEONTOLOGY,
PETROLOGY, AND MINERALOGY

FOR

THE YEAR 1897

BY

FRED BOUGHTON WEEKS



WASHINGTON
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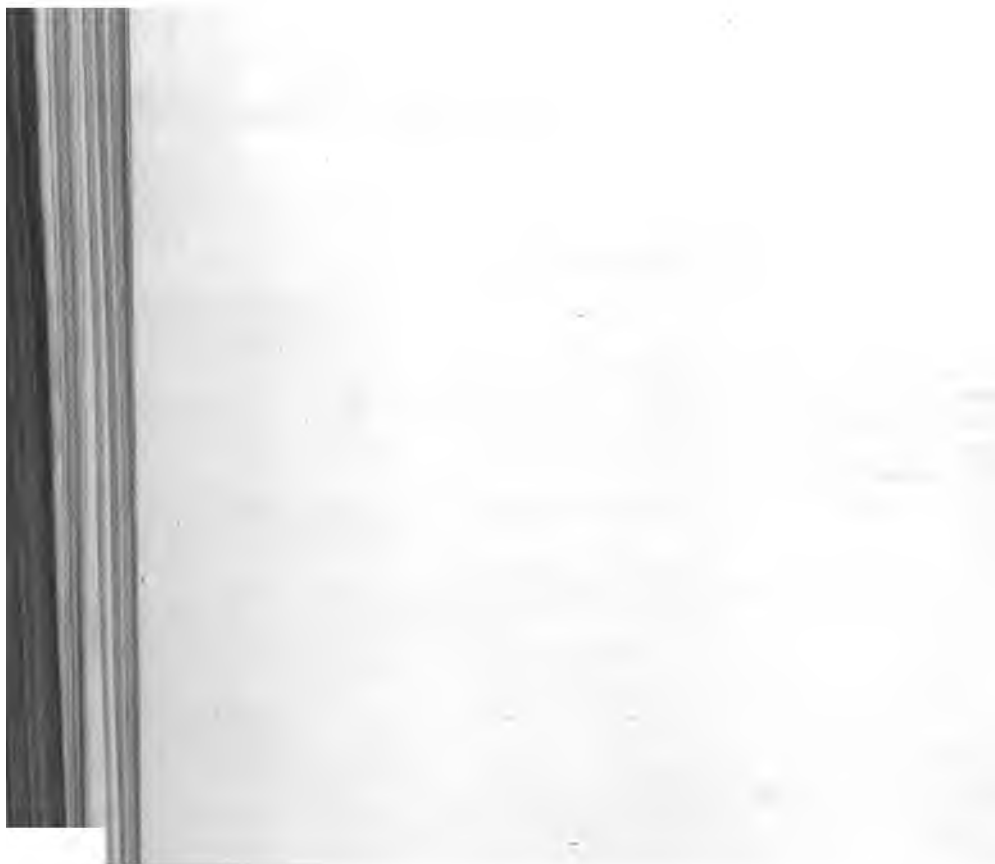
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LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
UNITED STATES GEOLOGICAL SURVEY,
DIVISION OF GEOLOGY,

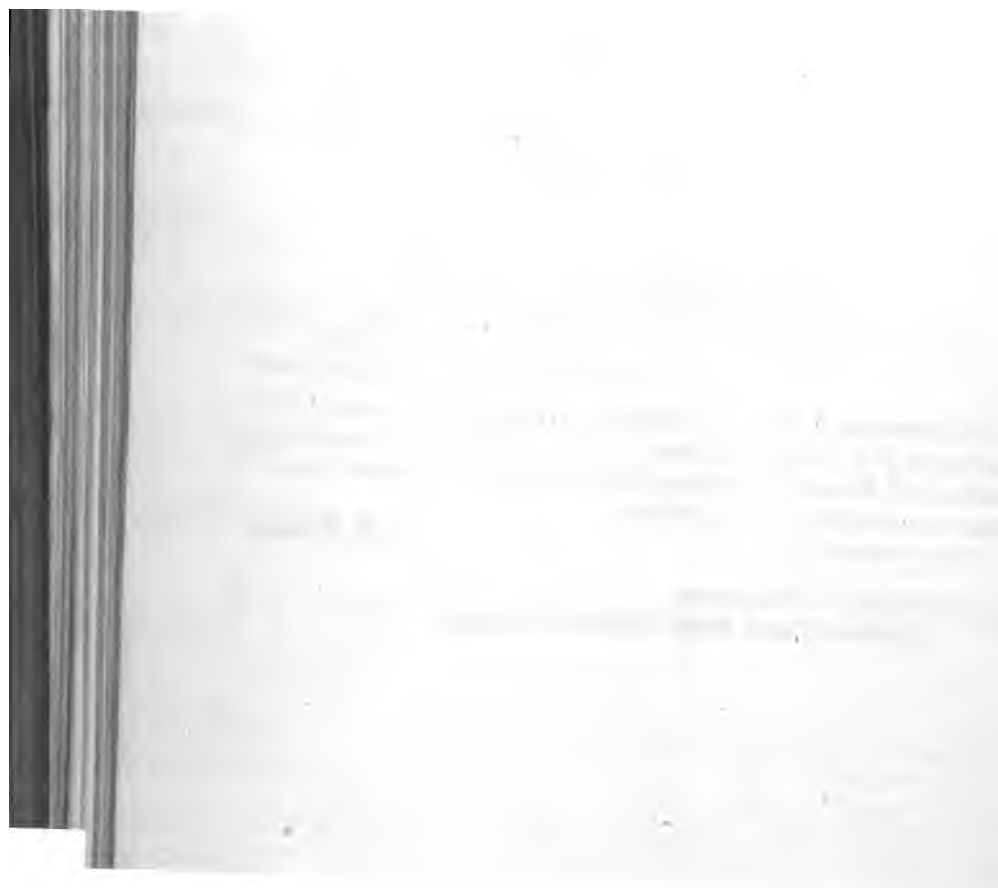
Washington, D. C., August 1, 1898.

SIR: I have the honor to transmit herewith the manuscript of a Bibliography and Index of North American Geology, Paleontology, Petrology, and Mineralogy for the Year 1897, and to request that it be published as a bulletin of the Survey.

Very respectfully,

F. B. WEEKS.

HON. CHARLES D. WALCOTT,
Director United States Geological Survey.



BIBLIOGRAPHY AND INDEX OF NORTH AMERICAN GEOLOGY, PALEONTOLOGY, PETROLOGY, AND MINERALOGY FOR THE YEAR 1897.

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INTRODUCTION.

The method of preparing and arranging the material of the Bibliography and Index for 1897 is similar to that adopted for the previous publications on this subject (Bulletins Nos. 130, 135, 146, and 149). The geological papers printed in the Transactions of the American Institute of Mining Engineers, volume 27, were entered in Bulletin No. 149 (Bibliography and Index for 1896), although the publication bears the date 1897. These papers were printed and issued as separates in 1896, but without pagination or volume number. In order to make the bibliography complete for the calendar year these papers appear again in this bulletin. The same course has been followed with volume 28, which bears the date 1898. A few other publications, which bear the date 1898, are included for the same reason.

Bibliography.—The bibliography consists of full titles of separate papers, classified by authors; an abbreviated reference to the publication in which the paper is printed, and a brief summary of the contents, each paper being numbered for index reference. The extent of papers less than a single page in length is indicated as $\frac{1}{2}$ p., 5 l. (lines).

Index.—The subject headings, their subdivisions and arrangement, are shown in the Classified Key to the Index. They comprise geographic, geologic, mineralogic, paleontologic, and petrologic subdivisions. Under Economic Geology is given a list of useful minerals and ores described in publications examined; under Mineralogy, a list of minerals described in such publications; under Paleontology, a list of genera and species of fossils therein described, and under Petrology, a list of rocks described, reference being made in each case, by author's name and number of article in the Bibliography, to the paper in which the fossil, mineral, or rock is described. The Index has been enlarged by the addition of the names of all geological subdivisions that are described in the publications examined. They are not grouped together, but occur in the regular alphabetical order.

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Describes the origin and occurrence of petroleum in Indiana, and gives local details, accompanied by map of productive area in northeastern Indiana.
- 72 — Indiana caves and their fauna.
Ind. Dept. Geol. and Nat. Res., 21st Ann. Rept., pp. 121-212, pls. iv-xiii, 1897.
Describes the formations of caves in limestones and the character and fauna of the caves in southern Indiana. Includes a bibliography.

- 73 **Blue** (Archibald). Sixth report of the bureau of mines [Ontario].
Ottawa, 289 pp., 2 geological maps, 1897.
Includes notes on the occurrence of building materials, petroleum,
natural gas, mica, graphite, iron, nickel, copper, gold, and corundum
and two geological maps.
- 74 **Bonney** (T. G.). [Review of "The glaciers of North America," by
I. C. Russell.]
Nature, vol. lv, p. 556, 1897.
- 75 **Boss** (C. M.). Some dike features of the Gogebic iron range [Mich-
igan-Wisconsin].
Am. Inst. Mg. Engrs., Trans., vol. xxvii, pp. 556-563, 1898.
Gives local details regarding the dikes of the region.
- 76 **Branner** (John Casper). Bacteria and the decomposition of rocks.
Am. Jour. Sci., 4th ser., vol. iii, pp. 438-442, 1897.
Discusses the agency of bacteria in the decomposition of rocks, and
reviews some recent literature on the subject.
- 77 — The former extension of the Appalachians across Mississippi,
Louisiana, and Texas.
Am. Jour. Sci., 4th ser., vol. iv., pp. 357-371, two geological maps,
1897; Abstract, Brit. Assoc. Adv. Sci., Rept. 1897, pp. 643-644, 1898;
Review by A. H. Purdue, Jour. of Geol., vol. v, pp. 759-760, 1897.
Discusses the character and extent of the southwestern Appalachian
depression and its bearing on the probable extension of the Appa-
lachians across the lower Mississippi region.
- 78 — The bauxite deposits of Arkansas.
Jour. of Geol., vol. v, pp. 263-289, pls. i-ii, figs. 1-4, 1897.
Describes the composition and structure of the bauxite material, and
discusses the geologic age, origin, and forms of the deposits. Gives a
bibliography of the subject.
- 79 — [Review of "The Bedford oolitic limestone of Indiana," by
T. C. Hopkins and C. E. Siebenthal.]
Jour. of Geol., vol. v, pp. 529-531, 1897.
- 80 — The phosphate deposits of Arkansas.
Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 580-598, 1897.
Describes the character of the Devonian strata in which the deposits
occur, and the occurrence and characteristics of the phosphate material,
and discusses its origin. Gives chemical analyses.
- 81 — The cement materials of southwest Arkansas.
Am. Inst. Mg. Engrs., Trans., vol. xxvii, pp. 42-63, figs. 1-6, 1898.
Describes the occurrence of the chalk beds, and gives chemical analy-
ses of the material.
- 82 — The introduction of new terms in geology.
Science, new ser., vol. v, pp. 912-913, 1897.
- 83 — New terms in geology.
Science, new ser., vol. vi, pp. 133-134, 1897.

- 84 **Branner** (John Casper). See **Ashley** (George H.), No. 24.
- 85 — **Newsom** (J. F.) and. The Red River and Clinton monoclines.
See Newsom (J. F.) and Branner (J. C.), No. 439.
- 86 **Bratnober** (H.). The Klondike gold fields [British Columbia].
Eng. and Mg. Jour., vol. lxiv, p. 484, 1897.
Describes the occurrence of gold placers.
- 87 **Brewer** (William M.). Further notes on the Alabama and Georgia gold fields.
Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 464-472, 1897.
Contains notes on the occurrence of gold ores and associated rocks in these States.
- 88 — Metal mining in Alabama.
Eng. and Mg. Jour., vol. lxiii, p. 256, 1897.
Describes the occurrence of gold in certain districts of Alabama.
- 89 — Gold mining in Georgia.
Eng. and Mg. Jour., vol. lxiii, p. 280, 1897.
Describes the occurrence of gold in northwest Georgia.
- 90 — The Villa Rica mining district, Georgia.
Eng. and Mg. Jour., vol. lxiii, p. 483, 1897.
Describes the occurrence of gold in this district.
- 91 — Some auriferous quartz bodies in Alabama.
Eng. and Mg. Jour., vol. lxiv, pp. 458-459, 1897.
Describes the occurrence of gold in northern Alabama.
- 92 — Copper mining in Alabama.
Ala. Ind. and Sci. Soc., Proc., vol. vii, pp. 13-16, 1897.
Gives brief notes on the occurrence of copper in Cleburne County.
- 93 — Gold fields of the South.
Colliery Eng., vol. xvii, pp. 333-335, 1897.
Describes the geologic formations and occurrence of gold in Georgia and Alabama.
- 94 **Brigham** (Albert Perry). Glacial flood deposits in Chenango Valley [New York].
Geol. Soc. Am., Bull., vol. viii, pp. 17-30, pl. 1, 1897.
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- 95 **Brooks** (Alfred Hulse), **Wolff** (J. E.) and. The age of the Franklin White limestone of Sussex County, New Jersey.
See Wolff (J. E.) and Brooks (A. H.), No. 733.
- 96 **Brown** (Lucius P.). Phosphate mining in Tennessee.
Mineral Industry, 1896, pp. 453-456, 1897.
Describes the character and occurrence of phosphate rocks in certain parts of the State.

- 97 **Brush** (George J.). Manual of determinative mineralogy, with an introduction of blowpipe analysis.
New York, John Wiley & Sons, 1882.
Review by O. C. Farrington, Jour. of Geol., vol. v, pp. 86-87, 1897.
- 98 **Bryson** (John). The Hempstead Plains, Long Island [New York].
Am. Geol., correspondence, vol. xx, pp. 61-65, 1897.
Describes the glacial phenomena.
- 99 **Buelna** (Ramon Felix y). Itinerarios geologicos. Estados de Durango, Chihuahua, Sonora y Sinaloa.
Inst. geol. de Mexico, Bulls., Nos. 4-6, pp. 19-29, 1897.
Describes the occurrence of gold and silver ore deposits in these States.
- 100 — The Copalquin and Lemon mineral zone, Durango, Mexico.
Eng. and Mg. Jour., vol. lxiv, p. 217, 1897.
Describes the geologic features of the region.
- 101 **Burwash** (Edward M.). Geology of the Nipissing-Algoma line [Ontario].
Ontario Bureau of Mines, 6th Ann. Rept., pp. 167-184, 1897.
Describes the occurrence of Huronian rocks and the glacial phenomena of the region.

C.

- 102 **Calvin** (Samuel). Memoir of Charles Wachsmuth.
Geol. Soc. Am., Bull., vol. viii, pp. 374-376, 1897.
Gives a sketch of his life and list of his published papers.
- 103 — The State quarry limestone [Iowa].
Iowa Acad. Sci., Proc., vol. iv, pp. 16-21, 1897.
Describes its lithologic and faunal characters and discusses its taxonomic relations.
- 104 — Synopsis of the drift deposits of Iowa.
Am. Geol., vol. xix, pp. 270-272, 1897.
Gives brief statements regarding the various stages of the Glacial epoch.
- 105 — Geology of Johnson County [Iowa].
Am. Geol., vol. xx, pp. 273, 1897.
Review by W. U[pham].
- 106 **Campbell** (Marius R.). Erosion at base level.
Geol. Soc. Am., Bull., vol. viii, pp. 221-226, pl. 20, 1897.
Describes local base-levels of the Appalachian region.
- 107 — Rapid section work in horizontal rocks.
Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 298-315, pls. i-iv, 1897.
Describes methods of studying areal geology in regions where the strata lie in a nearly horizontal position.

- 108 **Case** (E. C.). Foramina perforating the cranial region of a Permian reptile and on a cast of its brain cavity.
Am. Jour. Sci., 4th ser., vol. iii, pp. 321-326, 1897.
Describes the characters of *Dimetrodon incisivus* Cope and the occurrence of the foramina.
- 109 — On the osteology and relationships of *Protostega*.
Jour. of Morph., vol. xvi, pp. 21-55, pls. iv-vi, 1897.
Describes material from the Niobrara Cretaceous of Kansas.
- 110 — [Review of "The Dinosaurs of North America," by O. C. Marsh.]
Jour. of Geol., vol. v, pp. 87-88, 1897.
- 111 **Catlett** (Charles). Some of the manganese deposits of the Valley of the Virginia.
Eng. and Mg. Jour., vol. lxiv, pp. 156-157, 1897.
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- 112 **Chalmers** (Robert). The pre-Glacial decay of rocks in eastern Canada.
Brit. Assoc. Adv. Sci., Rept. 1897, pp. 655-656, 1898.
Describes beds of decayed rock beneath the glacial covering.
- 113 — The gold bearing deposits of the eastern townships of Quebec.
Can. Mg. Rev., vol. xvi, pp. 74-77, 1897.
Describes their geological occurrence and discusses their origin.
- 114 **Chamberlin** (T. C.). [Note on the former extension of the inland ice sheet of Greenland.]
Jour. of Geol., vol. v, pp. 81-85, 1897.
Reviews certain interpretations of the author's views on this subject.
- 115 — Glacial studies in Greenland, X.
Jour. of Geol., vol. v, pp. 229-240, figs. 64-68, 1897.
Continues the description of the author's observations of the glacial features of Greenland.
- 116 — [Review of "Glaciers of North America, a reading lesson for students in geography and geology," by Israel C. Russell.]
Jour. of Geol., vol. v, pp. 302-303, 1897.
- 117 — [Review of "Former extension of Cornell glacier near the southern end of Melville Bay," by Ralph S. Tarr.]
Jour. of Geol., vol. v, pp. 303-307, pl. 1, figs. 1-2, 1897.
- 118 — [Review of "Geological Survey of Canada, Annual Report, vol. viii, 1895."]
Jour. of Geol., vol. v, pp. 641-642, 1897.
- 118a — [Review of "Iowa Geological Survey, vol. vi, Report on lead, zinc, artesian wells, etc."]
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- 118b **Chamberlin** (T. C.). [Review of "Geology and Natural Resources of Indiana, 21st Annual Report."]
 Jour. of Geol., vol. v, pp. 644-646, 1897.
- 118c — [Review of "Report on the valley regions, Part II. On the Coosa Valley," by Henry McCalley.]
 Jour. of Geol., vol. v, pp. 646-647, 1897.
- 118d — [Review of "Glacial observations in the Umanak district, Greenland," by G. H. Barton.]
 Jour. of Geol., vol. v, pp. 650-651, 1897.
- 119 — A group of hypotheses bearing on climatic changes.
 Jour. of Geol., vol. v, pp. 653-683, 1897; Brit. Assoc. Adv. Sci., Rept. 1897, pp. 644-647, 1898.
 Discusses the indications of glaciations during geologic time and the theories as to the origin and development of the earth and the atmosphere.
- 120 — Supplementary hypothesis respecting the origin of the loess of the Mississippi Valley.
 Jour. of Geol., vol. v, pp. 795-802, 1897.
 Describes the distribution of the loess and discusses its origin.
- 121 — Studies for students. The method of multiple working hypotheses.
 Jour. of Geol., vol. v, pp. 837-848, 1897.
 Discusses the use of multiple hypotheses and their value in geological investigation.
- 122 — [Review of "The Glacial Lake Agassiz," by Warren Upham.]
 Jour. of Geol., vol. v, pp. 851-853, 1897.
- 123 — Former extension of Greenland glaciers.
 Science, new ser., vol. v, pp. 400-401, 1897.
 Discusses Prof. Tarr's statements on this subject.
- 124 — The former extension of ice in Greenland.
 Science, new ser., vol. v, p. 516, 1897.
 Discusses briefly the indications of glaciation by topography
- 125 — Former extension of Cornell glacier near the southern end of Melville Bay.
 Science, new ser., vol. v, pp. 748-753, figs. 1-3, 1897.
 Reviews some of the questions discussed in previous papers by Prof. Tarr and the author.
- 126 **Clark** (Maurice). Notes on mining in Oaxaca, Mexico.
 Eng. and Mg. Jour., vol. lxiv, pp. 35-36, 1897.
 Describes occurrence of silver ores in this region.
- 127 **Clark** (William Bullock). Eocene deposits of the Middle Atlantic slope in Maryland, Delaware, and Virginia.
 Jour. of Geol., vol. v, pp. 310-312, 1897.
 Review by C. R. Keyes.

- 128 **Clark** (William Bullock). (With the collaboration of R. M. Bagg and George B. Shattuck.) Upper Cretaceous formations of New Jersey, Delaware, and Maryland.
Geol. Soc. Am., Bull., vol. viii, pp. 315-358, pls. 40-50, 1897.
Describes the occurrence, characters, and distribution of the Matawan, Monmouth, Rancocas, Manasquan, and Shark River formations. Discusses the interpretation of the sedimentary and faunal records.
- 128a — Historical sketch embracing an account of the progress of investigation concerning the physical features and natural resources of Maryland.
Md. Geol. Surv., vol. i, pp. 43-138, pls. ii-v, 1897.
- 129 — Outline of present knowledge of the physical features of Maryland, embracing an account of the physiography, geology, and mineral resources.
Md. Geol. Surv., vol. i, pp. 141-228, pls. vi-xiii, 1897.
Describes the physiographic features of the State, the character and distribution of the igneous and sedimentary rocks, and the mineral resources.
- 130 — and **Bibbins** (Arthur). The stratigraphy of the Potomac group in Maryland.
Jour. of Geol., vol. v, pp. 479-506, 1897.
Describes the lithologic and faunal characters of the Patuxent, Arundle, Patapsco, and Raritan formations. Discusses the relations and age of the deposits and the views of other writers.
- 131 — and **Shattuck** (George B.). The geology of the sand hills of New Jersey.
Johns Hopkins Univ. Circ., vol. xvi, pp. 13-16, 1897.
Reviews the literature on this region and describes the stratigraphic relations and correlations of the deposits. Discusses the evidence of their age.
- 132 **Clarke** (F. W.) and **Hillebrand** (W. F.). Analyses of rocks with a chapter on analytical methods.
U. S. Geol. Surv., No. 148, 306 pp., 1897.
Includes analyses of a large number of igneous and sedimentary rocks from various parts of the United States.
- 133 **Clarke** (John M.). The Lower Silurian trilobites of Minnesota.
Minn. Geol. and Nat. Hist. Surv., Paleontology, vol. iii, Pt. II, pp. 695-759, figs. 1-82, 1897.
Gives the terminology of the trilobites and notes on various species; also descriptions of new species.
- 134 — The Lower Silurian Cephalopoda of Minnesota.
Minn. Geol. and Nat. Hist. Surv., Paleontology, vol. iii, Pt. II, pp. 761-812, pls. xlvii-lix, figs. 1-9, 1897.
- 135 — [Review of "Paleozoic fossils, vol. iii, pt. iii. The fossils of the Galena-Trenton and Black River formations of Lake Winnipeg and its vicinity," by J. F. Whiteaves.]
Am. Geol., vol. xx, pp. 187-188, 1897.

- 136 **Clarke** (John M.). The morphology of graptolites.
Am. Geol., vol. xx, pp. 188-189, 1897.
Reviews some recent literature on graptolites.
- 137 — A sphinctozoan calcisponge from the Upper Carboniferous of eastern Nebraska.
Am. Geol., vol. xx, pp. 387-392, pl. xxiii, 1897.
Describes the characters of the material.
- 138 **Claypole** (E. W.). A new *Dinichthys*-*Dinichthys kepleri*.
Am. Geol., vol. xix, pp. 322-324, pl. xx, 1897.
Describes and figures a new species from the Cleveland shale of Ohio.
- 139 — [Review of "Pleistocene features and deposits of the Chicago area," by Frank Leverett.]
Am. Geol., vol. xx, p. 57, 1897.
- 140 — [Review of "Geological Survey of Canada, Annual Report for 1895."]
Am. Geol., vol. xx, pp. 130-131, 1897.
- 141 — [Review of "On the southern Devonian formation," by H. S. Williams.]
Am. Geol., vol. xx, pp. 133-134, 1897.
- 142 — [Review of "Geological Survey of Mexico, Bulletins 4, 5, 6."]
Am. Geol., vol. xx, pp. 184-186, 1897.
- 143 **Coleman** (Arthur P.). Glacial and Interglacial deposits at Toronto [Canada].
Brit. Assoc. Adv. Sci., Rept. 1897, pp. 650-651, 1898.
Describes glacial phenomena of the vicinity.
- 144 — Third report on the West Ontario gold regions.
Ontario Bureau of Mines, 6th rept., pp. 71-124, 1897.
Describes the occurrence of gold in the region.
- 145 — Anthraxolite or anthracite carbon.
Ontario Bureau of Mines, 6th rept., pp. 159-161, 1897.
Describes its occurrence in Ontario.
- 146 — "Notes on the western Ontario gold fields."
Can. Mg. Review, vol. xvi, pp. 115-116, 1897.
- 147 — The anorthosites of the Rainy Lake region [Ontario].
Can. Rec. Sci., vol. vii, pp. 230-235, 1897.
See Bibliography and Index for 1896, No. 133.
- 148 **Cooper** (J. G.). On some new Cretaceous (and Eocene?) Mollusca of California.
Cal. Acad. Sci., Proc., vol. vi, pp. 330-336, pls. 47-48, 1897.
Describes and figures five new species.

- 149 **Cope** (E. D.). On new Paleozoic vertebrata from Illinois, Ohio, and Pennsylvania.
Am. Phil. Soc., Proc., vol. xxxv, pp. 71-91, 3 pls., 1897.
Describes new species of fishes and batrachia from the Catskill and Coal Measure series of these States.
- 150 **Cragin** (F. W.). Discovery of marine Jurassic rocks in southwestern Texas.
Jour. of Geol., vol. v, pp. 813-820, 1897.
Discusses the fossil evidence of the occurrence of strata in southwestern Texas and names the beds the Malone formation.
- 151 — Observations on the Cimarron series.
Am. Geol., vol. xix, correspondence, pp. 351-363, 1897.
Describes the author's observations of this series in Kansas, Oklahoma, and Texas, and discusses the classification and nomenclature of the beds.
- 152 — Notes on some fossils of the Comanche series.
Science, new ser., vol. vi, pp. 134-136, 1897.
Includes notes on certain species and description of *Turritella belviderei* n. sp.
- 153 — Stratigraphic names for Caprina and Caprotina (or Requinia) beds.
Science, new ser., vol. vi, p. 136, 1897.
Suggests that the name Barton Creek be abandoned, and proposes the name Stonewall limestone for it. Proposes the local names Granbury bed for the Caprotina limestone.
- 154 **Crook** (A. R.). Some geological causes of the scenery of the Yellowstone National Park.
Am. Geol., vol. xx, pp. 159-167, 1897.
Describes the general physiographic features and geological history of the Park.
- 155 **Crosby** (W. O.). Contribution to the geology of Newport Neck and Conanicut Island [Rhode Island].
Am. Jour. Sci., 4th ser., vol. iii, pp. 230-236, figs. 1-2, 1897.
Reviews previous descriptions of the geology of the region and describes the characters and relations of the Carboniferous and igneous rocks.
- 156 — The great fault and accompanying sandstone dikes of Ute Pass, Colorado.
Science, new ser., vol. v, pp. 604-607, 1897.
Describes the occurrence of the fault and discusses the origin of the dikes.
- 157 — and **Fuller** (M. L.). Origin of pegmatite.
Am. Geol., vol. xix, pp. 147-180, pls. viii-ix, 1897.
Describes the character of acid pegmatites and discusses the theories of their igneous and aqueo-igneous origin.

- 158 **Cross** (Whitman). Igneous rocks of the Leucite Hills and Pilot Butte, Wyoming.

Abstract, *Science*, new ser., vol. v, p. 361, 1897.

Describes the occurrence and petrographic and chemical characters of wyomingite, orendite, and madupite. Discusses the classification and nomenclature, and describes the inclusions in the Leucite Hills rocks.

- 159 — An analcite basalt from Colorado.

Jour. of Geol., vol. v, pp. 684-693, 1897.

Describes the petrographic and chemical characters of the material, and discusses its relations with closely allied rocks.

- 160 — and **Penrose** (R. A. F., jr.). Geology and mining industry of the Cripple Creek district, Colorado.

Jour. of Geol., vol. v, pp. 197-203, 1897.

Review by Arthur Winslow.

- 161 **Cushing** (H. P.). Notes on hypersthene andesite from Mt. Edgecumbe, Alaska.

Am. Geol., vol. xx, pp. 156-159, 1897.

Includes a letter from H. F. Reid describing its occurrence, and a discussion of the petrographic characters of the material.

- 162 **Dall** (William H.). A table of North American Tertiary horizons correlated with one another and with those of western Europe, with annotations.

U. S. Geol. Surv., 18th Ann. Rept., Pt. II, pp. 327-348, 1898.

Defines the main divisions of the Tertiary and includes notes on the table.

- 163 — **Guppy** (R. J. L.) and. Descriptions of Tertiary fossils from the Antillean region.

See Guppy (R. J. L.) and Dall (W. H.), No. 255.

- 164 **Daly** (Reginald Aldworth). Studies of the so-called porphyritic gneiss of New Hampshire.

Jour. of Geol., vol. v., pp. 694-722, figs. 1-2, pp. 776-794, 1897.

Reviews previous descriptions of the gneiss, describes its field relations and structure, and discusses the age of the intrusions.

- 165 **Darton** (Nelson Horatio). New developments in boring and irrigation in eastern South Dakota.

U. S. Geol. Surv., 18th Ann. Rept., Pt. IV, pp. 567-615, pls. xxxviii-xlvii, figs. 78-85, 1897.

Describes the progress of well sinking, the extent of the artesian basin, and the irrigation by artesian waters in 1896.

- 166 — Preliminary report on artesian waters of a portion of the Dakotas.

Am. Geol., vol. xix, pp. 274-276, 1897.

Review by J. E. T[odd].

- 167 **Davidson** (George). The submerged valleys of the coast of California, U. S. A., and of Lower California, Mexico.
Cal. Acad. Sci., Proc. Geol., 3d ser., vol. 1, No. 2, pp. 73-103, pls. iv-xii, 1897. Review by W. S. T. Smith, Jour. of Geol., vol. v, pp. 533-534, 1897.
Describes the submerged valleys of the coast of California, and presents a number of contour maps of the coast line.
- 168 **Davis** (William M.). The Triassic formation of Connecticut.
U. S. Geol. Surv., 18th Ann. Rept., Pt. II, pp. 9-192, pls. i-xx, figs. 1-52, 1898.
Describes the deposition, character, and occurrence of the Triassic strata, the occurrence and characters of the igneous rocks, and the deformation and denudation of the region.
- 169 — Is the Denver formation lacustrine or fluvial?
Science, new ser., vol. vi, pp. 619-621, 1897.
Discusses the origin of the Denver formation.
- 170 **Dawson** (George M.). Are the boulder clays of the Great Plains marine?
Jour. of Geol., vol. v, pp. 257-262, 1897.
Describes the occurrence of Cretaceous marine organisms in the boulder clays of the Great Plains in British Columbia. Gives a list of the fossils determined by Mr. Joseph Wright.
- 171 — [Review of "Genesis of Lake Agassiz," by J. B. Tyrrell.]
Jour. of Geol., vol. v, pp. 78-81, 1897.
- 172 — Opening address. Section C, British Association for the Advancement of Science, 1897.
Brit. Assoc. Adv. Sci., Rept. 1897, pp. 628-640, 1897; Nature, vol. lvi, pp. 396-401, 1897; Sci. Am. Suppl., vol. xlv, pp. 18069-18090, 1897.
Discusses the relations of the pre-Cambrian rocks of Canada and other parts of North America.
- 173 — The physical geography and geology of Canada.
Toronto, 48 pp., 1897.
Gives a general outline of the physiography and geologic features of Canada.
- 174 **Dawson** (J. William). Note on Carboniferous Entomostraca from Nova Scotia, in the Peter Redpath museum, determined and described by Prof. T. Rupert Jones, F. R. S., and Mr. Kirkby.
Can. Rec. Sci., vol. vii, pp. 316-323, figs. 1-9, 1897.
Describes and figures a number of species.
- 175 — Additional notes on fossil sponges and other organic remains from the Quebec group of Little Metis, on the lower St. Lawrence. With notes on some of the specimens by G. J. Hinde.
Can. Roy. Soc., Proc. and Trans., 2d ser., vol. ii, sect. iv, pp. 91-121, pls. i-iv, 1896.
Discusses the nomenclature of the subdivisions of the Quebec group, and describes the geologic features at Little Metis. Gives general remarks on the fossil sponges and descriptions of the species, including several new ones.

- 176 **Dawson** (J. William). Note on cryptozoon and other ancient fossils.
Can. Rec. Sci., vol. vii, pp. 203-219, figs. 1-3, 1897.
Gives a review of the knowledge of certain ancient fossils, mainly pre-Cambrian, and describes one new species from the grand canyon of the Colorado.
- 177 **Day** (David T.). A suggestion as to the origin of Pennsylvania petroleum.
Am. Phil. Soc., Proc., vol. xxxvi, pp. 112-115, 1897.
Discusses a theory suggested by John N. MacGonigle.
- 178 **Diller** (Joseph Silas). Crater Lake, Oregon.
Am. Jour. Sci., 4th ser., vol. iii, pp. 165-172, pl. v, 1897.
Nat. Geog. Mag., vol. 8, pp. 33-48, pl. i, 7 figs., 1897.
Describes the peculiar features of the lake and discusses its origin.
- 179 ——— Hornblende-basalt in northern California.
Am. Geol., vol. xix, pp. 253-255, 1897.
Describes the petrographic characters of the material and gives its chemical analysis.
- 180 ——— The origin of Camas Swale.
Abstract, Science, new ser., vol. vi, p. 923, 1897.
- 181 **Dixon** (Roland B.) and **Drew** (Charles D.). Observations on the physiography of western Massachusetts.
Science, new ser., vol. vi, p. 847, 1897.
Describes the slope of the peneplain in this region.
- 182 **Drake** (Noah Fields). The topography of California.
Jour. of Geol., vol. v, pp. 563-578, 1897.
Describes the topographic features of the state.
- 183 **Draper** (Marshall). Hahn's Peak [Colorado].
Colliery Engineer, vol. xvii, pp. 437-438, 1897.
Describes the geologic features of the region and the occurrence of the gold and silver ores.
- 184 **Dresser** (John A.). Geological report and map of the district about Montreal [Canada].
Can. Rec. Sci., vol. vii, pp. 247-255, 1897.
Gives a summary of a report of the Geological Survey of Canada on this region.
- 185 **Drew** (Charles D.), **Dixon** (Roland B.) and. Observations on the physiography of western Massachusetts.
See Dixon (R. B.) and Drew (C. D.), No. 181.
- 186 **Duden** (Hans). Some notes on the black slate or Genesee shale of New Albany, Ind.
Ind. Dept. of Geol. and Nat. Res., 21st Ann. Rept., pp. 108-119, pls. ii-iii, 1897.
Describes the chemical composition of the slate and the methods of utilizing it. Includes a description of new genera and species of fossil plants.

- 187 **Dumble** (E. T.). Some Texas oil horizons.
 Abstract, *Science*, new ser., vol. vi, p. 72 ($\frac{1}{2}$ p.), 1897.
 Gives a brief statement as to the different geologic horizons at which
 oil occurs in this state.

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- 188 **Eastman** (C. R.). On *Ctenacanthus* spines from the Keokuk lime-
 stone of Iowa.
Am. Jour. Sci., 4th ser., vol. iv, pp. 10-12, figs. 1-2, 1897.
 Describes two species, including one new one.
- 189 — **Taniobatis vetustus**, a new form of fossil skate.
Am. Jour. Sci., 4th ser., vol. iv, pp. 85-90, pl. 1, fig. 1, 1897.
 Describes material from the Devonian of Kentucky.
- 190 — On the characters of *Macropetalichthys*.
Am. Nat., vol. xxxi, pp. 493-499, pl. xii, 1897.
- 191 **Ellis** (W. Hodgson). Chemical composition of the anthraxolite.
 Ontario Bureau of Mines, 6th Rept., pp. 162-166, 1897.
 Gives analyses of various specimens.
- 192 **Ells** (R. W.). Problems in Quebec geology.
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Nat., vol. xi, pp. 173-176, 1897.
 Describes the general results of the study of the geology of this
 province.
- 193 — Paleozoic outliers in the Ottawa River basin [Canada].
Can. Roy. Soc., Proc. and Trans., 2d ser., vol. ii, sec. iv, pp. 137-149,
 1896.
 Describes the occurrence of Cambro-Silurian and Upper Silurian
 formations in this region.
- 194 — **Memoir of N. J. Giroux**.
Geol. Soc. Am., Bull., vol. viii, p. 377, 1897.
 Gives a sketch of his life.
- 195 — [Note on "Origin and relations of the Grenville-Hastings
 series of the Canadian Laurentian."]
Geol. Soc. Am., Bull., vol. viii, pp. 401-402, 1897.
 Describes briefly the characters of the series.
- 196 — See **Adams** (F. D.) and **Barlow** (A. E.), No. 5.
- 197 — **Adams** (F. D.), **Barlow** (A. E.) and. On the origin and rela-
 tions of the Grenville and Hastings series in the Canadian
 Laurentian.
 See Adams (F. D.), Barlow (A. E.), and Ells (R. W.), No. 7.
- 198 **Emerson** (B. K.). Diabase pitchstone and mud inclosures of the
 Triassic trap of New England.
Geol. Soc. Am., Bull., vol. viii, pp. 59-86, pls. 3-9, 1897.
 Describes the characters of the tuff, mud inclosures, pitchstone, and
 the petrographic character of the Greenfield bed and the Meriden ash
 bed. Discusses the origin of the glass and minerals.

- 199 **Emmons** (Samuel Franklin). Some mines of Rosita and Silver Cliff, Colorado.

Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 773-823, 1897.

Describes the geologic history of the region, and the occurrence and character of the ore bodies in the principal mines. Discusses their origin. Gives chemical analyses of waters from deep levels in the Geyser mine and a discussion of the results.

- 200 ——— Origin of Green River.

Science, new ser., vol. vi, pp. 19-21, 1897.

Discusses the evidence as to the origin and development of this river.

- 201 ——— The geology of government explorations.

Geol. Soc. of Wash., Presidential address, 39 pp., Washington, 1897;
Science, new ser., vol. v, pp. 1-15, 42-51, 1897.

Gives a historical sketch of the work of geological surveys undertaken by the United States government, and a bibliography of the subject.

- 202 ——— and **Tower** (George Warren, jr.). Economic geology of the Butte Special district [Montana].

U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 38, 1897.

Describes the fissure systems, the distribution of the ores, the ore deposition, the minerals occurring with the ores, and the character and occurrence of the lodes.

- 203 **Endlich** (F. M.). The Pearce mining district, Arizona.

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- 204 **Engel** (George W.). Description of a peculiar fault in the Mammoth coal bed, Panther Creek basin, Pennsylvania.

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- 205 **Fairbanks** (Harold W.). The geology of the San Francisco peninsula [California].

Jour. of Geol., vol. v, pp. 63-76, 1897.

Reviews the report of Prof. Lawson on this subject and discusses the author's conclusions.

- 206 ——— An interesting case of contact metamorphism.

Am. Jour. Sci., 4th ser., vol. iv, pp. 36-38, 1 fig., 1897.

Describes the geologic features of the locality in southern California and the contact phenomena.

- 207 ——— The tin deposits at Temescal, southern California.

Am. Jour. Sci., 4th ser., vol. iv, pp. 39-42, 1897. Mg. and Sci. Press, vol. lxxv, p. 362, 1897.

Describes the geologic features of the region and the occurrence of the vein system and the tin deposits.

- 208 **Fairbanks** (Harold W.). Oscillations of the coast of California during the Pliocene and Pleistocene.

Am. Geol., vol. xx, pp. 213-245, pl. xv, 1897.

Reviews previous opinions concerning the subject, and discusses the evidences of the separation of the Pliocene and Pleistocene, and the evidence of a post-Pliocene disturbance and uplift.

- 209 — Outline of the geology of California with reference to its mineral deposits.

Mg. and Sci. Press, vol. lxxiv, pp. 132, 152, 173, 193, 213, and 232, 1897.

Describes the general geologic features of the occurrence of mineral deposits in California.

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- 210 **Fairchild** (Herman LeRoy). Glacial geology of western New York.

Geol. Mag., dec. 4, vol. iv, pp. 529-537, with map, 1897; Brit. Assoc. Adv. Sci., Rept. 1897, p. 664, (4 p.), 1898.

Describes the glacial deposits and phenomena of this portion of the state.

- 211 — Lake Warren shore lines in western New York and the Geneva beach.

Geol. Soc. Am., Bull., vol. viii, pp. 269-284, pl. 30, 1897.

Describes the occurrence of the shore lines and other glacial phenomena of the region.

- 212 **Farrington** (Oliver C.). Observations on Popocatepetl and Ixtacihuatl, with a review of the geographic and geologic features of the mountains [Mexico].

Field Col. Mus., Geol. ser., vol. 1, pp. 75-120, pls. vii-xviii, figs. 1-2, 1897.

Reviews the literature on the region, and describes the geographic, geologic, and glacial features.

- 213 — [Review of "Manual of determinative mineralogy, with an introduction on blowpipe analysis," by George J. Brush.]

Jour. of Geol., vol. v, pp. 86-87, 1897.

- 214 — The average specific gravity of meteorites.

Jour. of Geol., vol. v., pp. 126-130, 1897.

Reviews previous discussions of the subject, and gives the results of the author's studies.

- 215 — The eruptive rocks of Mexico.

Jour. of Geol., vol. v, pp. 467-468, 1897.

(Gives a summary of recent work by Señor Ordóñez on this subject.

- 216 **Fenderson** (W. C.). Turquoise mining in New Mexico.

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Describes the occurrence of turquoise in New Mexico.

- 217 **Ferrier** (W. F.), **Barlow** (A. E.) and. On the relations and structure of certain granites and associated arkoses of Lake Temiscaming, Canada.
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- 218 **Finch** (Grant E.). Drift section at Oelwein, Iowa.
Iowa Acad. Sci., Proc., vol. iv, pp. 54-58, pl. 1, 1897.
Describes the local features of the drift beds.
- 219 **Foerste** (August F.). A report on the geology of the Middle and Upper Silurian rocks of Clark, Jefferson, Ripley, Jennings, and southern Decatur counties, Indiana.
Ind. Dept. Geol. and Nat. Res., 21st Ann. Rept., pp. 213-288, pls. xiv-xvii, 1897.
Describes the lithologic and faunal characters and occurrence of the different subdivisions of the Silurian strata, and includes geological maps of the counties named.
- 220 **Foote** (H. W.), **Pratt** (J. H.) and. On wellsite, a new mineral.
See Pratt (J. H.) and Foote (H. W.), No. 485.
- 221 — **Penfield** (S. L.) and. On bixbyite, a new mineral, and notes on the associated topaz.
See Penfield (S. L.) and Foote (H. W.), No. 469.
- 222 — — Note concerning the composition of ilmenite.
See Penfield (S. L.) and Foote (H. W.), No. 470.
- 223 **Foote** (Warren M.). Note on a new meteorite from the Sacramento Mountains, New Mexico.
Am. Jour. Sci., 4th ser., vol. iii, pp. 65-66, pls. i-ii, 1897. *Nature*, vol. lv, pp. 572-573, figs. 1-2, 1897.
Describes the mass and gives its chemical analysis.
- 224 **Fowke** (Gerard). The formation of natural bridges.
Stone, vol. xiv, pp. 355-357, 1897.
Discusses the mode of formation of natural bridges.
- 225 **Frazer** (Persifor). Tables for the determination of minerals by physical properties ascertainable with the aid of a few field instruments.
J. B. Lippincott & Co., Philadelphia, 4th edition, 1897.
Review by U. S. Grant], *Am. Geol.*, vol. xix, pp. 221-222, 1897; Review by E. B. Mathews, *Science*, new ser., vol. v, pp. 624-625, 1897.
- 226 — Notes on the northern Black Hills of South Dakota.
Am. Inst. Mg. Engrs., Trans., vol. xxvii, pp. 204-231, 1898.
Describes the general geology of the region and occurrence of the gold ores. Includes a bibliography.
- 227 **Fuller** (M. L.), **Crosby** (W. O.) and. Origin of pegmatite.
See Crosby (W. O.) and Fuller (M. L.), No. 157.

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- 228 **Gemmell** (R. C.). The Camp Floyd mining district and the Mercur mine, Utah.
Eng. and Mg. Jour., vol. lxiii, pp. 403-404, 1897.
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- 229 **Gilbert** (Grove Karl). Recent earth movements in the Great Lakes region.
U. S. Geol. Surv., 18th Ann. Rept., pt. ii, pp. 601-647, pl. cv, figs. 93-101, 1898; Nat. Geog. Mag., vol. viii, pp. 233-247, figs. 1-7, 1897; Abstract, Nature, vol. lvii, pp. 211-213, fig. 1, 1897.
Describes the general features of the region and the methods of obtaining the data, and gives a discussion and summary of results.
- 230 — Pueblo folio, Colorado.
U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 36, 1897.
Describes the geologic history of the region, the character and occurrence of the Archean, Silurian, Carboniferous, Jura-Trias, Cretaceous, Neocene, and Pleistocene strata, the character and origin of the topographic features and the economic resources of the region. Includes topographic and geological maps.
- 231 — Old tracks of Erian drainage in western New York.
Abstract, Geol. Soc. Am., Bull., vol. viii, pp. 285-286, 1897.
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- 232 **Gill** (Theodore). Edward Drinker Cope, Naturalist. A chapter in the history of Science.
Am. Nat., vol. xxxi, pp. 831-863, 1897; Science, new ser., vol. vi, pp. 225-243, 1897; Sci. Am. Suppl., vol. xlv, pp. 18028, 18080-18081, and 18092-18094, 1897.
Gives a sketch of the life of Prof. Cope and a review of his work as a naturalist.
- 233 **Gilpin** (E., jr.). The geological horizons of some Nova Scotia minerals.
Brit. Assoc. Adv. Sci., Rept. 1897, p. 663 († p.). 1898.
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- 234 — Some analyses of Nova Scotia coals and other minerals.
N. S. Inst. Sci., Proc. and Trans., 2d ser., vol. ii, pp. 246-254, 1897.
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- 235 **Goodrich** (Harold Beach). Recent warpings as shown by drainage peculiarities [Alaska].
U. S. Geol. Surv., 18th Ann. Rept., pt. iii, pp. 276-289, 1898.
Describes Alaskan drainage and the warping of the region as measured by the streams, and gives a summary of conclusions.
- 236 — See **Spurr** (J. E.), No. 575.

- 237 **Gordon** (O. H.). [Review of "Correlation of Erie-Huron beaches with outlets and moraines in southeastern Michigan," by F. B. Taylor.]
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- 238 **Grabau** (Amadeus W.). The sand plains of Truro, Wellfleet, and Eastham [Massachusetts].
Abstract, Science, new ser., vol. v, pp. 334-335, 361, 1897.
 Describes the physiography of the region and the character and occurrence of the sand plains.
- 239 **Grant** (U. S.). [Review of "Preliminary report on the Marquette iron bearing district of Michigan," by C. R. Van Hise and W. S. Bayley. With a chapter on the Republic trough, by H. L. Smyth.]
Jour. of Geol., vol. v, pp. 401-404, 1897.
- 240 — [Review of "Tables for the determination of minerals by physical properties ascertainable with the aid of a few field instruments," by Persifer Frazer.]
Am. Geol., vol. xix, pp. 221-222, 1897.
- 241 — [Review of "Biennial report of the State geologist of Missouri," by C. R. Keyes.]
Am. Geol., vol. xix, p. 350 ($\frac{1}{2}$ p.), 1897.
- 242 — Lakes with two outlets in northeastern Minnesota.
Am. Geol., vol. xix, pp. 407-411, 1897.
 Describes the occurrence of several lakes of this character, and discusses the evidences of their probable duration.
- 243 — [Review of "Treatise on rocks, rock-weathering and soils," by George P. Merrill.]
Am. Geol., vol. xx, pp. 273-274, 1897.
- 244 — [Review of "Syllabus of general geology for students, with definition and references," by C. W. Hall.]
Am. Geol., vol. xx, pp. 323-324, 1897.
- 245 — [Review of "Geology of Polk County, Iowa," by H. F. Bain.]
Am. Geol., vol. xx, p. 334 ($\frac{1}{2}$ p.), 1897.
- 246 **Gratacap** (L. P.). Fossils and fossilization.
Am. Nat., vol. xxxi, pp. 16-33, 191-199, 285, 293, 1897.
 Continues the discussion from paper in *Am. Nat.*, vol. xxx, p. 1003, 1896.
- 247 **Gregory** (J. W.). Some problems of Arctic geology. I. The polar basin.
Nature, vol. lvi, pp. 301-303, figs. 1-3, 1897.
 Discusses the geologic history of the Arctic region.
- 248 — Some problems of Arctic geology. II. Former Arctic climates.
Nature, vol. lvi, pp. 351-352, 1897.
 Discusses the evidences as to the nature of Arctic climates in former geologic ages.

- 249 **Gresley** (W. S.). Traces of organic remains from Huronian (?) series at Iron Mountain, Mich., etc.
Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 527-534, 1897.
Describes the characteristics of markings considered to be of organic origin from the ore bodies at this locality.
- 250 **Grimsley** (G. P.). Gypsum deposits of Kansas.
Geo. Soc. Am., Bull., vol. viii, pp. 227-240, pls. 21-22, 1897.
Describes the topography of the areas, the origin, character, and age of the gypsum deposits, and the occurrence and character of the secondary gypsum deposits.
- 251 — Gypsum in Kansas.
Kan. Univ. Quart., vol. vi, pp. 15-27, pls. iii-vi, figs. 1-6, 1897.
Describes the character and extent of the gypsum deposits of the State.
- 252 — The study of natural palimpsests.
Am. Geol., vol. xix, pp. 15-21, 1897.
Discusses the phenomena of metamorphism.
- 253 — [Review of "The University Geological Survey of Kansas," vol. ii.]
Am. Geol., vol. xix, pp. 272-274, 1897.
- 254 **Griswold** (Leon S.). Notes on the geology of Southern Florida.
Jour. of Geol., vol. v, pp. 312-313, 1897.
Review by J. Edmund Woodman.
- 255 **Guppy** (R. J. Lechmere) and **Dall** (William H.). Descriptions of Tertiary fossils from the Antillean region.
U. S. Nat. Mus., Proc., vol. xix, pp. 303-331, pls. xxvii-xxx, 1897.
- 256 **Gurley** (William F. E.), **Miller** (S. A.) and. New species of crinoids, cephalopods, and other Paleozoic fossils.
See Miller (S. A.) and Gurley (Wm. F. E.), No. 431.
- 257 **Gwillim** (J. C.) and **Johnson** (W. S.). Some ores and rocks of southern Slokan division, West Kootenay, British Columbia.
Can. Rec. Sci., vol. vii, pp. 293-302, 6 figs., 1897.
Describes the geologic features and the occurrence of the gold and silver ores of the region.

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- 258 **Hall** (Christopher W.). Syllabus of general geology for students, with definitions and references.
The University Book Store, Minneapolis, Minn., 8vo, 127 pp., 1897.
Review by U. S. G[rant], Am. Geol., vol. xx, pp. 323-324, 1897.
- 259 **Hallock** (W.). Subterranean temperatures at Wheeling, W. Va., and Pittsburg, Pa.
School of Mines Quart., vol. xviii, pp. 148-153, 1897.
Gives notes on the temperatures in deep wells at these localities.

- 260 **Hanna** (George B.), **Nitze** (H. B. C.) and. Gold deposits of North Carolina.

See Nitze (H. B. C.) and Hanna (G. B.), No. 445.

- 261 **Hardman** (John E.). Notes on some mining districts in British Columbia.

Can. Mg. Review, vol. xvi, pp. 109-112, 1897.

Describes briefly the occurrence of gold and silver in the Rossland, Nelson, and Fort Steele districts.

- 262 **Hatcher** (J. B.). *Diceratherium proavatum*.

Am. Geol., vol. xx, pp. 313-316, pl. xix, 1897.

Makes correction of error in original description, and discusses its assignment to the genus *Diceratherium* rather than *Aceratherium*.

- 263 **Haworth** (Erasmus). Underground waters of southwestern Kansas.

U. S. Geol. Surv., Water-Supply and Irrigation Papers No. 6, 63 pp., pls. i-xii, figs. 1-2, 1897.

Describes the physiography of the region, the character and occurrence of the Juratrias, Cretaceous, and Tertiary beds, and the water supply. Includes a geological map.

- 264 — Physiography of western Kansas.

Kan. Univ. Geol. Surv., vol. ii, pp. 11-49, pls. i-viii, fig. 1, 1897.

Describes the stream erosion of the region.

- 265 — Physical properties of the Tertiary [Kansas].

Kan. Univ. Geol. Surv., vol. ii, pp. 251-284, pls. xxxvi-xliv, 1897.

Describes the physical character of the material forming the Tertiary deposits, and discusses their origin and mode of formation.

- 266 — The University Geological Survey of Kansas, vol. ii.

Review by S. W. W[illiston], Jour. of Geol., vol. v, pp. 400-401, 1897;

Review by G. P. G[rimsley], Am. Geol., vol. xix, pp. 272-274, 1897.

- 267 — See **Logan** (W. N.), No. 388.

- 268 — and **Beede** (J. W.). The McPherson Equus beds [Kansas].

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Describes the topographic features of the region, and the character, structure, and origin of the beds.

- 269 **Hayes** (O. W.). Solution of silica under atmospheric conditions.

Geol. Soc. Am. Bull., vol. viii, pp. 213-220, pls. 17-19, 1897.

Describes occurrence of this phenomenon and the chemical reactions involved.

- 270 — [Review of "Report on the Valley Regions of Alabama, Part II. On the Coosa Valley region." By Henry McCalley.]

Science, new ser., vol. vi, p. 296, 1897.

- 271 — The geological relations of some Southern iron ores.

Science, new ser., vol. v, p. 558, 1897.

- 272 **Head** (Jeremiah). The coal industry of the southeastern States of North America.

North of Eng. Inst. Mg. and Mech. Engrs., Trans., vol. xlv, pp. 167-182, 3 figs., 1897.

Describes the character and occurrence of coal in the southern Appalachian region.

- 273 **Henrich** (Carl). Faulting and accompanying features observed in glacial gravel and sand in southern Michigan.

Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 460-464, fig. 1, 1897.

Describes the character of the strata and the faulting that has taken place.

- 274 **Herrick** (C. L.). The geology of a typical mining camp in New Mexico.

Am. Geol., vol. xix, pp. 256-262, pls. xiii-xiv, 1897.

Describes the general geologic features of the Magdalena Mountains and the fault phenomena of the region.

- 275 **Hershey** (Oscar F.). The Florencia formation.

Am. Jour. Sci., 4th ser., vol. iv, pp. 90-98, 1897.

Describes the lithologic character, distribution, and relations of the formation in Illinois, and gives a list of fossils determined by W. H. Dall.

- 276 — Mode of formation of till as illustrated by the Kansan drift of northern Illinois.

Jour. of Geol., vol. v, pp. 50-62, fig. 1, 1897.

Describes the general glacial features of the region and the occurrence and mode of formation of the till.

- 277 — Eskers indicating stages of glacial recession in the Kansan epoch in northern Illinois.

Am. Geol., vol. xix, pp. 197-209, 237-253, pl. xi, 1897.

Describes the distribution of the stratified gravel and sand, its mode of deposition, and the occurrence of transported rock masses. Presents a map showing the Kansan stages of recession and gives the author's conclusions.

- 278 — The term Pecatonica limestone.

Am. Geol., vol. xx, correspondence, pp. 66-67, 1897.

Discusses the use of the term Pecatonica.

- 279 — The physiographic development of the upper Mississippi valley.

Am. Geol., vol. xx, pp. 246-268, 1897.

Describes the peneplains in southeastern Minnesota, northeastern Iowa, northwestern Illinois, and the canyon valleys of the upper Mississippi region.

- 280 — The inferior boundary of the Quaternary era.

Am. Nat., vol. xxxi, pp. 104-114, 1897.

Discusses the evidences of the beginning of the Quaternary epoch.

- 281 **Hershey** (Oscar F.). [Review of "The formation of the Quaternary deposits of Missouri," by James E. Todd.]
Science, new ser., vol. v, pp. 587-588, 1897.
- 282 — The loess formation of the Mississippi valley.
Science, new ser., vol. v, pp. 768-770, 1897.
Describes the character and origin of the loess.
- 283 **Hill** (Robert T.). Memoir of Robert Hay.
Geol. Soc. Am., Bull., vol. viii, pp. 370-374, 1897.
Gives a sketch of his life and a list of his published papers.
- 284 — The alleged Jurassic of Texas. A reply to Prof. Jules Marcou.
Am. Jour. Sci., 4th ser., vol. iv, pp. 449-469, 1897.
Reviews the work on the Cretaceous series of the southwest, with special reference to the work and publications of Prof. Marcou in the same region.
- 285 — The easternmost volcanoes of the United States.
Science, new ser., vol. vi, pp. 594-595, 1897.
Describes occurrence of volcanic flows in eastern New Mexico.
- 286 — The stratigraphic succession in Jamaica.
Brit. Assoc. Adv. Sci., Rept. 1897, p. 642 († p.), 1898.
- 287 — and **Vaughan** (T. Wayland). Geology of the Edwards plateau and Rio Grande plain adjacent to Austin and San Antonio, Texas, with reference to the occurrence of underground waters.
U. S. Geol. Surv., 18th Ann. Rept., Pt. II, pp. 199-321, pls. xxi-lxiv, figs. 53-76, 1898.
Describes the physiography of the region, the character and occurrence of the Comanche and Gulf series, and the Eocene strata, and the occurrence of underground water.
- 288 **Hille** (F.). The western Ontario gold fields and their genesis.
Can. Mg. Review, vol. xvi, pp. 153-158, figs. 1-11, 1897.
Describes the origin of the ore bodies.
- 289 **Hillebrand** (W. F.), **Clarke** (F. W.) and. Analyses of rocks, with a chapter on analytical methods.
See Clarke (F. W.) and Hillebrand (W. F.), No. 132.
- 290 **Hinde** (G. J.). Eminent living geologists. Dr. G. M. Dawson.
Geol. Mag., dec. 4, vol. iv, pp. 193-195, 1897.
Gives a sketch of the life and work of Dr. Dawson.
- 291 — See Dawson (J. William), No. 175.
- 292 **Hitchcock** (C. H.). Note on the stratigraphy of certain homogeneous rocks.
Abstract, Geol. Soc. Am., Bull., vol. viii, pp. 389-390, 1897.
Describes the cleavage and stratification planes of certain rocks of Vermont and New Hampshire.

- 293 **Hitchcock** (C. H.). Sketch of W. W. Mather.
Am. Geol., vol. xix, pp. 1-15, pl. 1, 1897.
Gives a sketch of his life and a list of his published writings.
- 294 — The eastern lobe of the ice sheet.
• Am. Geol., vol. xx, pp. 27-33, 1897.
Describes recent observations in the Adirondack region.
- 295 — The southern lobe of the Laurentian ice sheet.
Brit. Assoc. Adv. Sci., Rept. 1897, pp. 653-654, 1898.
Contains a brief discussion of the extent of the ice sheet in northern United States.
- 296 — [Review of "Annual Report of the Geological Survey of Canada for the calendar year 1894, new series, vol. vii."]
Science, new series, vol. v, pp. 621-624, 1897.
- 297 **Hobbs** (William H.). Note on the geology of southwestern New England.
Jour. of Geol., vol. v., pp. 175-177, 1897.
Describes observations of the structure in southwestern Massachusetts and northwestern Connecticut, and its bearing on the correlation of the Canaan limestone with the Stockbridge, the Riga schist with the Berkshire schist, and the Egremont limestone with the Bellowspipe limestone.
- 298 **Hollick** (A.). [Review of "Stratigraphy and paleontology of the Laramie and related formations in Wyoming" by T. W. Stanton and F. H. Knowlton.]
Torrey Bot. Club., Bull., vol. xxiv, p. 26 († p.), 1897.
- 299 — A new fossil grass from Staten Island [New York].
Torrey Bot. Club., Bull., vol. xxiv, pp. 122-124, 1897.
Describes a new species from the Tertiary beds.
- 300 — [Review of "Nature, structure, and phylogeny of *Dæmonelix*," by E. H. Barbour.]
Torrey Bot. Club, Bull., vol. xxiv, pp. 266-267, 1897.
- 301 — [Review of "Age of the lower coals of Henry County, Missouri," by David White.]
Torrey Bot. Club, Bull., vol. xxiv, pp. 316-317, 1897.
- 302 — A new fossil Monocotyledon from the Yellow gravel at Bridge-ton, N. J.
Torrey Bot. Club, Bull., vol. xxiv, pp. 329-331, pls. 311-313, 1897.
Describes a new species from the Tertiary beds.
- 303 **Hoover** (Herbert C.). Geology of the Four Mile placer mining district, Colorado.
Eng. and Mg. Jour., vol. lxiii, p. 510, 1897.
Describes the placer mines and discusses the origin of the gold.

- 304 **Hopkins** (T. C.). **Brownstones of Pennsylvania.**
U. S. Geol. Surv., 18th Ann. Rept., Pt. V (cont.), pp. 1025-1043, 1897.
Describes the chemical and mineralogic composition and geologic occurrence of the brownstones.
- 305 — **Origin of conglomerates of western Indiana.**
Abstract, Geol. Soc. Am., Bull., vol. viii, pp. 14-15, 1897.
Discusses the origin of the Carboniferous conglomerate.
- 306 — **Styolites.**
Am. Jour. Sci., 4th ser., vol. iv, pp. 142-144, 1897; Stone, vol. xv, pp. 137-139, 1897.
Describes their occurrence and origin.
- 307 — **The building materials of Pennsylvania. I, Brownstones.**
Pa. State College, Ann. Rept. for 1896, Appendix 122 pp., 26 pls., 9 figs., 1897; Stone, vol. xv, pp. 147-155, 257-265, 364-369, 1897.
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- 433 **Minot** (Charles Sedgwick). Cephalic homologies. A contribution to the determination of the ancestry of vertebrates.
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- 442 **Nitze** (Henry B. C.). Some late views of the so-called Taconic and Huronian rocks in central North Carolina.
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- 447 — [Review of "Water resources of Illinois," by Frank Leverett.]

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- 448 **Noyes** (W. A.). Composition of Indiana coals.

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- 452 — **Descripcion de las rocas** [Sierra de Pachuca, Mexico].

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- 453 — **Aguilera** (J. G.) and. **Fisiografia de la Sierra de Pachuca** [Mexico].

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- 454 — — **Geologia general de la Sierra de Pachuca** [Mexico].

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- 455 **Ordonez** (Ezequiel), **Aguilera** (J. G.) and. Las vetas [Sierra de Pachuca, Mexico].
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- 456 **Ortmann** (Arnold E.). The systematic position of *Crangopsis vermiformis* (Meek) from the sub-Carboniferous rocks of Kentucky.
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- 457 — On a new species of palinurid, genus *Linuparus*, found in the upper Cretaceous of Dakota.
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- 458 **Osborn** (Henry Fairfield). The Huerfano lake basin, southern Colorado, and its Wind River and Bridger fauna.
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- 459 — Reconstruction and model of *Phenacodus primævus* Cope.
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- 460 — The origin of the mammalia.
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- 461 — *Lambdotherium* not related to *Palæosyops* or the *Titanotheres*.
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- 462 — Wind River and Huerfano beds in the Huerfano lake basin.
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- 463 — Edward D. Cope.
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- 464 — The *Ganodonta* or primitive edentates with enameled teeth.
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- 465 **Pearce** (Richard). Occurrence of Tellurium in Montana.
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- 465a — Tellurium from the Griffith lode, Colorado.
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- 466 **Pearce** (Richard). Telluride gold ores.
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- 467 **Peckham** (S. F.). On the nature and origin of petroleum.
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- 468 **Penfield** (S. K.). On the chemical composition of hamlinite and its occurrence with bertrandite at Oxford County, Maine.
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- 469 — and **Foote** (H. W.). On bixbyite, a new mineral, and notes on the associated topaz.
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- 470 — — Note concerning the composition of ilmenite.
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- 471 **Penhallow** (D. P.). Contributions to the Pleistocene flora of Canada.
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- 473 **Penrose** (R. A. F., jr.). Geology and mining industry of the Cripple Creek district, Colorado.
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- 474 **Phillips** (Francis C.). On the genesis of natural gas and petroleum.
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- 475 — On the occurrence of petroleum in the cavities of fossils.
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- 476 **Phillips** (William B.). Mining low-grade gold ores in Alabama.
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- 478 **Phillips** (William B.). The gold regions of Alabama, U. S. A.
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gulch, Montana.
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- 481 — **Weed** (W. H.) and. Geology and mineral resources of the
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- 482 **Porter** (J. A.). The Smuggler-Union mines, Telluride, Colorado.
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- 483 **Pratt** (J. H.). On the crystallography of the Montana sapphires.
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- 484 — Notes on North Carolina minerals.
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various subdivisions, and describes the lithologic and faunal characters
of a number of sections.
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- 488 **Prosser** (Charles S.). The Permian and upper Carboniferous of southern Kansas.

Kan. Univ. Quart., vol. vi, pp. 149-175, pls. xviii-xix, 1897.

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- 489 **Purdue** (A. H.). [Review of "The former extension of the Appalachians across Mississippi, Louisiana, and Texas," by J. C. Branner.]

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- 490 **Purington** (Charles Wells). Preliminary report on the mining industries of the Telluride quadrangle, Colorado.

U. S. Geol. Surv., 18th Ann. Rept., Pt. III, pp. 751-848, pls. ciii-cxviii, figs. 66-74, 1898.

Gives a general description of the sedimentary and igneous rocks, the fissures and vein systems, and the occurrence of the ore. Discusses the origin and age of the ore deposits.

- 491 ——— Telluride mining district, Colorado.

Abstract, Science, new ser., vol. v, p. 890, 1897.

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- 492 **Rangel** (M.). Exploitation de las minas [Sierra de Pachuca, Mexico].

Inst. Geol. de Mexico, Bulls. Nos. 7-9, pp. 127-141, 1897.

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- 493 **Ransome** (F. Leslie). The age of the California coast ranges.

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- 494 ——— [Review of "The geology of Santa Catalina island," by W. S. T. Smith.]

Jour. of Geol., vol. v, pp. 208-210, 1897.

- 494a ——— and **Turner** (H. W.). Sonoro folio, California.

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- 495 **Reid** (Harry Fielding). Variations of glaciers.

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- 496 ——— [Review of "The glaciers of North America," by Israel O. Russell.]

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- 497 **Reid** (Harry Fielding). **Glacier Bay and its glaciers.**
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- 498 **Rickard** (T. A.). **Vein walls.**
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- 499 — **Enterprise mine, Rico, Colo.**
Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 906-980, 48 figs., 1897.
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- 500 — **The Lake of the Woods gold field [Ontario].**
Eng. and Mg. Jour., vol. lxiv, pp. 5-8, figs. 1-3, 1897.
 Describes the occurrence of gold in northwestern Ontario.
- 501 **Ries** (Heinrich). **The clay-working industry in 1896.**
U. S. Geol. Surv., 18th Ann. Rept., Pt. V (cont.), pp. 1105-1168, 1897.
 Describes deposits of clay in various parts of the United States.
- 502 — **The fuller's earth of South Dakota.**
Am. Inst. Mg. Engrs., Trans., vol. xxvii, pp. 333-335, 1898.
 Describes its occurrence in the Black Hills.
- 503 — **The clays and clay working industry of Colorado.**
Am. Inst. Mg. Engrs., Trans., vol. xxvii, pp. 336-340, 1898.
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- 504 **Rowley** (R. R.) and **Keyes** (C. R.). **Vertical range of fossils at Louisiana [Missouri].**
 See Keyes (C. R.) and Rowley (R. R.), No. 331.
- 505 **Ruedemann** (R.). **Evidence of current action in the Ordovician of New York.**
Am. Geol., vol. xix, pp. 367-391, pls. xxii, 1897.
 Describes the evidence of the parallel arrangement in the rocks of the remains of certain fossils, as bearing on the probable course of the currents by which they were transported. Presents a geologic map of the region described.
- 506 — **Development and mode of growth of *Diplograptus McCoy*.**
Am. Geol., vol. xx, p. 136 (½ p.), 1897.
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- 507 — [Review of "A handbook of the genera of the North American Paleozoic Bryozoa," by George B. Simpson.]
Am. Geol., vol. xx, pp. 330-331, 1897.

- 508 **Russell** (Israel Cook). *Glaciers of Mount Rainier. With a paper on the rocks of Mount Rainier by George Otis Smith.*

U. S. Geol. Surv., 18th Ann. Rept., Pt. II, pp. 355-423, pls. lxx-lxxxii, 1898.

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- 509 — *A reconnoissance in southeastern Washington.*

U. S. Geol. Surv., Water Supply and Irrigation Papers No. 4, 96 pp., pls. i-vii, figs. 1-3, 1897.

Describes the physiography of the region, the occurrence and character of the metamorphic rocks, the Kittitas system, the Columbia lava, the John Day system, and the artesian waters conditions.

- 510 — *Principal features of the geology of southeastern Washington.*

Mining, vol. iii, pp. 163-165, 1897.

Describes the general geologic features of the region.

- 511 — "Plasticity" of glacial ice.

Am. Jour. Sci., 4th ser., vol. iii, pp. 344-346, 1897.

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- 512 — [Review of "Glacier Bay and its glaciers," by H. F. Reid.]

- 513 — *Glaciers of North America; a reading lesson for students of geography and geology.* Boston and London, Ginn & Co., 1897.

Jour. of Geol., vol. v, pp. 302-303, 1897, review by T. C. C[hamberlin]; Nat. Geog. Mag., vol. viii, pp. 124-125, 1897, review by W. J. M[cGee]; Science, new ser., vol. v, pp. 660-661, 1897, review by H. F. Reid; Am. Geol., vol. xix, p. 278 (½ p.), 1897, review by N. H. W[inchell].

- 514 — *Volcanoes of North America, a reading lesson for students of geography and geology.*

The Macmillan Company, New York, 1897.

Review, Nature, vol. lvii, pp. 70-71, 1897.

- 515 — *Lakes of North America, a reading lesson for students of geography and geology.*

Ginn & Co., Boston, 8vo, 125 pp.

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- 516 **Sadtler** (Samuel P.). *The genesis and chemical relations of petroleum and natural gas.*

Am. Phil. Soc., Proc., vol. xxxvi, pp. 93-102, 1897.

Discusses the origin of petroleum and natural gas.

- 517 — [On the origin of Pennsylvania petroleum.]

Am. Phil. Soc., Proc., vol. xxxvi, pp. 136-138, 1897.

In discussion of paper by David T. Day on the same subject.

- 518 **Salisbury** (Rollin D.). On the origin and age of the relic-bearing sand at Trenton, N. J.
 Science, new ser., vol. vi, pp. 977-981, 1897.
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- 519 — [Review of "An introduction to geology," by W. B. Scott.]
 Jour. of Geol., vol. v, pp. 398-399, 1897.
- 520 — [Review of "Maryland Geological Survey," Vol. I.]
 Jour. of Geol., vol. v, pp. 760-761, 1897.
- 521 — and **Atwood** (Wallace Walter). Drift phenomena in the vicinity of Devils Lake and Baraboo, Wisconsin.
 Jour. of Geol., vol. v, pp. 131-147, figs. 1-7, 1897.
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- 522 — and **Knapp** (George N.). Surface geology. Report of progress [New Jersey].
 N. J. Geol. Surv., Rept. for 1896, pp. 1-23, pls. i-vii, 1897.
 Describes the character, distribution, and correlation of the Pensauken formation, and the character and distribution of the Beacon Hill formation, and of the road materials in certain portions of the State. Includes a geologic map.
- 523 **Sanchez** (P. C.). Sistema de fracturas [Sierra de Pachuca, Mexico].
 Inst. geol. de Mexico, Bulls. Nos. 7-9, pp. 81-98, 1897.
 Describes the occurrence and characters of the fracture systems of the region.
- 524 **Sardeson** (Frederic W.). The Galena and Maquoketa series. Part II.
 Am. Geol., vol. xix, pp. 21-35, 1897.
 Presents the author's classification of the series and describes their faunal relationships.
- 525 — The Galena and Maquoketa series. Part III.
 Am. Geol., vol. xix, pp. 91-111, pls. iv-v, 1897.
 Describes a number of species of *Orthis*, including some new ones, and discusses their relations.
- 526 — The Galena and Maquoketa series. Part IV.
 Am. Geol., vol. xix, pp. 180-190, 1897.
 Gives a list of the species of *Plectambonites* and *Rhynchonella* occurring in these beds and a summary of facts presented in this and former papers on the same subject.
- 527 — Nomenclature of the Galena and Maquoketa series.
 Am. Geol., vol. xix, pp. 330-336, 1897.
 Discusses some of the principles of geologic nomenclature and the use of the names applied to the Galena and Maquoketa series.
- 528 — On *Streptelasma profundum* (Owen), *S. corniculum* Hall.
 Am. Geol., vol. xx, pp. 277-292, pls. xvi-xvii, 1897.
 Discusses the author's conclusion that *S. profundum* shows all the distinctive characters of the 14 species assigned to the genus.

- 529 **Sardeson** (Frederic W.). On glacial deposits in the driftless area.
Am. Geol., vol. xx, pp. 392-403, 1897.
Discusses the evidences of glacial phenomena in the driftless area of the Upper Mississippi Valley.
- 530 **Schmidt** (A.). Die Talklagerstaaten von St. Lawrence County im Staat New York.
Zeit. für prak. Geol., Heft 1, pp. 29-30, 1897.
See Bibliography and Index for 1896, No. 637.
- 531 — Die Goldeszange von Cripple Creek in Colorado.
Zeit. für prak. Geol., Heft 3, pp. 98-99, 1897.
See Bibliography and Index for 1896, No. 621.
- 532 — Der Smuggler Erzgang zu Telluride in Colorado.
Zeit. für prak. Geol., Heft 3, pp. 99-100, 1897.
See Bibliography and Index for 1896, No. 550.
- 533 — Die Gunnison goldzone in Colorado.
Zeit. für prak. Geol., Heft 3, pp. 100-101, 1897.
See Bibliography and Index for 1896, No. 424.
- 534 — Palaozoische phosphorite in Arkansas.
Zeit. für prak. Geol., Heft 3, pp. 101-102, 1897.
See Bibliography and Index for 1896, No. 73.
- 535 — Ueber das alter der Goldseifen der Sierra Nevada in Californien.
Zeit. für prak. Geol., Heft 6, pp. 226-227, 1897.
See Bibliography and Index for 1896, No. 449.
- 536 — Die Magnetit-Lagerstätten bei Port Henry im Staat New York.
Zeit. für prak. Geol., Heft 9, p. 318, 1897.
- 537 **Schmitz** (E. J.). Copper ores in the Permian of Texas.
Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 97-108, 1897.
Describes the stratigraphic and lithologic features of the district and the occurrence and character of the ore bodies.
- 538 **Schneider** (Philip F.). A geologic fault at Jamesville, near Syracuse, N. Y.
Am. Jour. Sci., 4th ser., vol. iii, pp. 455-460, 1897.
Describes fault phenomena in Devonian rocks of central New York.
- 539 **Schuchert** (Charles). A synopsis of American fossil Brachiopoda, including bibliography and synonymy.
U. S. Geol. Surv., Bull. No. 87, 464 pp., pl. i, figs. 1-6, 1897.
Review by C. E. Beecher, Am. Nat., vol. xxxi, pp. 1053-1055, 1897.
Describes in tabular form the geographic and geologic distribution of brachiopod genera, discusses the biologic development and the classification of the Brachiopoda, and gives an alphabetic list of genera and species with references and synonymy. Includes a chapter on the morphology of the brachia by Charles E. Beecher.

- 540 **Schuchert** (Charles). On the fossil phyllopod genera *Dipeltis* and *Protocaris* of the family *Apodidae*.

U. S. Nat. Mus., Proc., vol. xix, pp. 671-676, pl. lviii, 1897.

- 541 **Schultze** (E. A.) and **Kain** (O. Henry). The Santa Monica diatomaceous deposit, with list of references to figures of species.
Torrey Bot. Club, Bull., vol. xxiv, pp. 496-504, 1897.

Gives a brief mention of the occurrence of the deposits and a reference list of species figured from this deposit.

- 542 **Scofield** (W. H.), **Ulrich** (E. O.) and. The Lower Silurian Gastropoda of Minnesota.

See Ulrich (E. O.) and Scofield (W. H.), No. 628.

- 542a **Scott** (Samuel). Map of the Black Hills of South Dakota and Wyoming, with full descriptions of mineral resources, etc.

Custer City, S. D. 40 pp. and geological map, 1897.

Gives brief notes on the geologic formations and igneous rocks and the occurrence of minerals in the Black Hills. Presents a geological map of the region.

- 543 **Scott** (W. B.). Lakes.

Sci. Am. Suppl., vol. xliii, pp. 17756-17758, 1897.

Discusses the origin of lakes in various parts of the United States. An abstract of a lecture before the Wagner Institute.

- 544 ——— Glaciers.

Sci. Am. Suppl., vol. xlv, pp. 18005-18006, 1897.

Comprises an abstract of a lecture on the constructive work of glaciers.

- 545 ——— An introduction to geology.

The Macmillan Company, New York, 1897.

Review by R. D. Salisbury, Jour. of Geol., vol. v, pp. 398-399;

Review by H. S. Williams, Am. Jour. Sci., 4th ser., vol. iii, pp. 422-423;

Review by W. J. M. [Gee], Nat. Geog. Mag., vol. viii, pp. 91-92, 1897.

- 546 **Scovell** (J. T.). Geology of Vigo County, Indiana.

Ind. Dept. of Geol. and Nat. Res., 21st Ann. Rept., pp. 507-576, 1897.

Describes the character of the Carboniferous rocks, the occurrence of coal, and the glacial features of the county.

- 547 **Shaler** (Nathaniel S.). Geology of the Cape Cod district [Massachusetts].

U. S. Geol. Surv., 18th Ann. Rept., Pt. II, pp. 503-593, pls. xcvii-civ, figs. 86-92, 1898.

Describes the general relations, understructure, glacial deposits and history, and other geologic features of the Cape Cod region.

- 548 ——— [Water supply of eastern Massachusetts.]

Abstract, Science, new ser., vol. v, p. 703 (½ p.), 1897.

Describes briefly the occurrence and character of the water supply.

- 549 **Shaler** (Nathaniel S.), **Woodworth** (J. B.), and **Marbut** (C. F.).
The glacial brick clays of Rhode Island.

Am. Geol., vol. xx, pp. 328-329, 1897.

Review by W. U[pham].

- 550 **Shattuck** (George B.). See **Clark** (W. B.), No. 128.

- 551 ——— **Clark** (W. B.) and. The geology of the sand hills of New Jersey.

See **Clark** (W. B.) and **Shattuck** (G. B.), No. 131.

- 552 **Shimek** (B.). Additional observations on the surface deposits in Iowa.

Iowa Acad. Sci., Proc., vol. iv, pp. 68-72, 1897.

Describes character of drift beds at various localities.

- 553 **Simonds** (Frederic W.). Professor Ch. Fred. Hartt, M. A. A tribute.

Am. Geol., vol. xix, pp. 69-90, pl. iii, 1897.

Gives an account of the life and work of Prof. Hartt and a bibliographic list of his papers.

- 554 — [Review of "Marine fossils from the Coal Measures of Arkansas," by J. P. Smith.]

Science, new ser., vol. v, pp. 850-852, 1897.

- 555 **Simpson** (George B.). A handbook of the genera of the North American Paleozoic Bryozoa.

Am. Geol., vol. xx, pp. 330-331, 1897.

Review by R. R[uedemann].

- 556 **Sims** (H. N.). A description of a peculiar split in the mammoth coal seam near Ashland, Pa.

Colliery Eng., vol. xix, pp. 532, 2 figs., 1897.

Describes occurrence of a syncline between two partings of the coal seam.

- 557 **Sisley** (L. A.). The porphyry dike mines of Montana.

Eng. and Mg. Jour., vol. lxiv, p. 399, 1897.

Describes the geologic features and occurrence of gold southwest of Helena, Mont.

- 558 **Skewes** (Edward). The ore shoots of Cripple Creek [Colorado].

Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 553-579, 1897.

Describes the occurrence of the ore shoots and their structural features.

- 559 **Slosson** (Edwin E.). Analysis of Popo Agie, Lander, and Shoshone petroleum [Wyoming].

Wyoming Univ. School of Mines, Petroleum ser., Bull. No. 2, pp. 21-34, 1897.

Describes the chemical character and composition of the oils.

- 560 **Smith** (Eugene A.). Sketch of the life of Michael Tuomey.
Am. Geol., vol. xx, pp. 205-212, pl. i, 1897.
Gives a sketch of his life and a list of his published papers.
- 561 **Smith** (Frank Clemes). The occurrence and behavior of tellurium in gold ores, more particularly with reference to the Potsdam ores of the Black Hills, South Dakota.
Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 485-515, figs. 1-11, 1897.
Gives analyses of the ores, a description of the action of tellurium as a mineralizing agent and of the microscopic characters of the associated rocks.
- 562 — The Potsdam gold ores of the Black Hills of South Dakota.
Am. Inst. Mg. Engrs., Trans., vol. xxvii, pp. 404-428, 1898.
Describes the occurrence, character, and origin of the so-called Potsdam siliceous gold and silver ores.
- 563 **Smith** (George Otis). The rocks of Mount Rainier [Washington].
U. S. Geol. Surv., 18th Ann. Rept., Pt. II, pp. 416-423, 1898.
Describes the relations and characters of the granite and volcanic rocks of the region.
- 564 — The geology of the Fox Islands, Maine. A contribution to the study of old volcanics.
Skowhegan, Me., 76 pp., 2 pls., 1896.
Review by F. B[ascom], Am. Geol., vol. xix, pp. 214-219, 1897.
- 565 **Smith** (James Perrin). Studies for students: Comparative study of paleontology and phylogeny.
Jour. of Geol., vol. v, pp. 507-524, pl. 1, 1897.
Discusses the law of acceleration of development, the nomenclature of stages of growth, the groups available for ontogenetic studies and methods of working.
- 566 — The development of Glyptoceras and the phylogeny of the Glyptoceratidæ.
Cal. Acad. Sci., Proc., Geology, 3d ser., vol. i, pp. 105-128, 3 pls., 1897.
Discusses the classification of the Goniatites and describes the larval stages of Glyptoceras incisum Hyatt.
- 567 **Smith** (William Sidney Tangier). A geological sketch of San Clemente Island [California].
U. S. Geol. Surv., 18th Ann. Rept., Pt. II, pp. 465-496, pls. lxxxiv-xcvi, figs. 82-85, 1898.
Describes the topography and the character of the eruptive rocks and Tertiary deposits of the island.
- 568 — The geology of the Santa Catalina Island [California].
Cal. Acad. Sci., Proc., Geology, 3d ser., vol. i, pp. 1-71, 3 pls., 1897.
Review by F. L. Ransome, Jour. of Geol., vol. v, pp. 208-210, 1897.
Describes the topographic features of the island and the character and occurrence of the sedimentary and eruptive rocks. Includes a geologic map and notes on the Foraminifera, by Dr. George J. Hinde.

- 569 **Smith** (William Sidney Tangier). [Review of "The submerged valleys of the coast of California, U. S. A., and of Lower California, Mexico," by George Davidson.]
 Jour. of Geol., vol. v, pp. 533-534, 1897.
- 570 — A note on the migration of divides.
 Jour. of Geol., vol. v, pp. 809-812, 1897.
 Describes the migration of a divide on San Clemente Island, off the coast of California.
- 571 **Smyth** (C. H., Jr.). Pseudomorphs from northern New York.
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 Describes pseudomorphs of pyroxene after wallastonite and mica after scapolite and pyroxene.
- 572 **Smyth** (H. L.). The Republic trough [Michigan].
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- 573 — Magnetic observations in geological mapping.
 Am. Inst. Mg. Engrs., Trans., vol. xxvi, pp. 640-709, 27 figs., 1897.
 Describes the magnetic rocks of the Lower Huronian series in the Upper Peninsula of Michigan, and the instruments and methods of work. Gives the results of tracing magnetic rocks by the disturbances produced in the instruments.
- 574 **Spencer** (J. W.). On the continental elevation of the glacial epoch.
 Brit. Assoc. Adv. Sci., Rept. 1897, pp. 661-662, 1898.
 Discusses the evidences of such elevation.
- 575 **Spurr** (Josiah Edward). Geology of the Yukon gold district, Alaska. With an introductory chapter on the history and condition of the district to 1897, by Harold Beach Goodrich.
 U. S. Geol. Surv., 18th Ann. Rept., Pt. III, pp. 101-392, pls. xxxii-li, figs. 7-25, 1898.
 Describes the occurrence, character, and distribution of the sedimentary and igneous rocks and of the auriferous veins and placer deposits of the region. Discusses the evidences of movement in the earth's crust. Includes a report by F. H. Knowlton on the fossils collected and a chapter on recent warpings of the region by H. B. Goodrich.
- 576 — The measurement of faults.
 Jour. of Geol., vol. v, pp. 723-729, 1897.
 Abstract, Science, new ser., vol. v, p. 238, 1897.
 Describes the general methods employed and gives the author's definition of the terms used in the study of fault phenomena.
- 577 **Squier** (C. H.). Studies in the driftless region of Wisconsin.
 Jour. of Geol., vol. v, pp. 825-836, figs. 1-2, 1897.
 Describes the occurrence of loess and the characteristics of the stratified and unstratified beds, and discusses the evidences of their glacial origin.

- 578 **Stanton** (Timothy W.). A comparative study of the Lower Cretaceous formations and faunas of the United States.
Jour. of Geol., vol. v, pp. 579-624, 1897.
 Describes the general features and classification of the Lower Cretaceous strata and the lithologic and faunal characters of its subdivisions. Presents a bibliography of the subject.
- 579 — On the genus *Remondia* Gabb, a group of Cretaceous bivalve mollusks.
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- 580 — and **Knowlton** (F. H.). Stratigraphy and paleontology of the Laramie and related formations in Wyoming.
Geol. Soc. Am., Bull., vol. viii, pp. 127-156; Review by A. Hollick, *Torrey Bot. Club., Bull.*, vol. xxiv, p. 26 (½ p.), 1897.
 Describes the stratigraphic and paleontologic features of the various beds.
- 581 **Stearns** (Robert E.). Description of a new species of *Actæon* from the Quaternary bluffs of Spanish Bight, San Diego, California.
The Nautilus, vol. xi, pp. 14-15, 1897.
 Describes *Actæon traskii* n. sp.
- 582 **Stewart** (Alban). Restoration of *Oreodon culbertsoni* Leidy.
Kans. Univ. Quart., vol. vi, pp. 13-14, pl. i, 1897.
- 583 **Stone** (George H.). To trace an invisible dike.
Colliery Eng., vol. xviii, p. 151, 1897.
 Describes dike phenomena at Cripple Creek, Colo.
- 584 **Storms** (W. H.). Mines of the gold belt [California].
Mg. and Sci. Press., vol. lxxv, pp. 96, 194-195, 1897.
 Describes the general geologic features and occurrence of gold.

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- 585 **Tarr** (Ralph S.). Former extension of Cornell glacier near the southern end of Melville Bay.
Geol. Soc. Am., Bull., vol. viii, pp. 251-268, pls. 25-29, 1897.
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- 586 — Arctic sea ice as a geological agent.
Am. Jour. Sci., 4th ser., vol. iii, pp. 223-229, 1897.
 Describes the erosion and transportation effected by sea and glacier ice.
- 587 — Difference in the climate of the Greenland and American sides of Davis' and Baffin's Bay.
Am. Jour. Sci., 4th ser., vol. iii, pp. 315-321, 1897.
 Discusses the changes of level that have taken place, and their relation to glaciation.

- 588 **Tarr** (Ralph S.). Former extension of Cornell glacier near the southern end of Melville Bay.
Jour. of Geol., vol. v, pp. 303-307, pl. 1, figs. 1-2, 1897.
Review by T. C. Chamberlin.
- 589 ——— Rapidity of weathering and stream erosion in the Arctic latitudes.
Am. Geol., vol. xix, pp. 131-136, pl. vi, 1897.
Describes the characteristics of weathering and stream erosion in this region.
- 590 ——— Evidence of glaciation in Labrador and Baffin Land.
Am. Geol., vol. xix, pp. 191-197, pl. x, 1897.
Describes the glacial phenomena of the region.
- 591 ——— Valley glaciers of the upper Nugsuck peninsula, Greenland.
Am. Geol., vol. xix, pp. 262-267, pl. xv, 1897.
Describes the occurrence of local glaciers on this coast of Greenland.
- 592 ——— Changes of level in the Bermuda Islands.
Am. Geol., vol. xix, pp. 293-303, pls. xvi-xviii, 1897.
Describes the physiographic and orographic features of the islands.
- 593 ——— The margin of the Cornell glacier [Greenland].
Am. Geol., vol. xx, pp. 139-156, pls. vi-xli, 1897.
Describes and illustrates the characteristics of this glacier.
- 594 ——— Former extension of Greenland glaciers.
Science, new ser., vol. v, p. 344, 1897.
Discusses the evidence as to the extension of glaciation over the angular peaks.
- 595 ——— The former extension of ice in Greenland.
Science, new ser., vol. v, pp. 515-516, 1897.
Discusses certain observations on this subject.
- 596 ——— Former extension of ice in Greenland.
Science, new ser., vol. v, pp. 804-805, 1897.
Discusses Professor Chamberlin's review of the author's paper on this subject.
- 597 ——— The glaciers of Greenland.
Sci. Amer., vol. lxxvi, pp. 216-217, figs. 1-3, 1897.
Describes some of the glaciers of Greenland.
- 598 ——— The Arctic sea ice as a geological agent.
Sci. Am. Suppl., vol. xlv, pp. 17941-17942, 1897.
- 599 ——— Elementary geology.
Review by H. B. Kummel, Jour. of Geol., vol. v, pp. 317-318, 1897; Review by W J McGee, Nat. Geog. Mag., vol. viii, pp. 59-60, 1897; Review by N. H. Winchell, Am. Geol., vol. xix, pp. 277-278, 1897.

- 600 Taylor** (Frank Bursley). Correlation of Erie-Huron beaches with outlets and moraines in southeastern Michigan.
 Geol. Soc. Am., Bull., vol. viii, pp. 31-58, pl. 2, 1897; Review by C. H. Gordon. Jour. of Geol., vol. v, pp. 313-317, 1897.
 Describes the recent work of the author on the moraines and beaches of the region.
- 601 —** Moraines of recession and their significance in glacial theory
 Jour. of Geol., vol. v, pp. 421-466, 1897; Am. Geol., vol. xix, correspondence, p. 290, 1897.
 Describes the Cincinnati-Mackinac moraine series, and discusses its value as a basis of interpretation. Discusses the character and duration of the glacial oscillations and the effect of changes of climate on the ice sheet.
- 602 —** Scoured bowlders of the Matawa valley [Ontario].
 Am. Jour. Sci., 4th ser., vol. iii, pp. 208-218, 1897.
 Describes the characteristics and occurrence of scoured bowlders which indicate the probable course of the former outlet of the Great Lakes.
- 603 —** Lake Adirondack.
 Am. Geol., vol. xix, pp. 392-396, 1897.
 Describes the general features of a probable glacial lake in northern New York.
- 604 —** The Nipissing-Matawa river the outlet of the Nipissing great lakes.
 Am. Geol., vol. xx, correspondence, pp. 65-66, 1897.
 Describes the general features of the river.
- 605 —** Notes on the abandoned beaches of the north coast of Lake Superior.
 Am. Geol., vol. xx, pp. 111-128, 1897.
 Reviews Prof. Lawson's publications on the subject and describes the author's observations on the abandoned beaches.
- 606 —** The Champlain submergence and uplift, and their relation to the Great Lakes and Niagara Falls.
 Brit. Assoc. Adv. Sci., Rept. 1897, pp. 652-653, 1898.
 Discusses the evidence of the abandoned beaches.
- 607 Teall** (J. J. H.). Differentiation in igneous magmas as a result of progressive crystallization.
 Brit. Assoc. Adv. Sci., Rept. 1897, pp. 661-662, 1898.
 Describes certain basalts and their bearing on the theory of differentiation of igneous magmas.
- 608 Tight** (W. G.). Some pre-Glacial drainage features in southern Ohio.
 Denison Univ., Sci. Lab., Bull., vol. ix, pt. ii, pp. 22-32, pla. A, B, C, III, 1897.
 Describes drainage features in southern Ohio.

- 609 **Tight** (W. G.). A pre-Glacial valley in Fairfield County [Ohio].
Denison Univ., Sci. Lab., Bull., vol. ix, pt. ii, pp. 33-37, pls. D, E,
F, IV, 1897.
Describes the drainage of the region.
- 610 **Tilton** (J. L.). Results of recent geological work in Madison
County [Iowa].
Iowa Acad. Sci., Proc., vol. iv, pp. 47-54, 1897.
Describes the character and distribution of the loess, drift, and Upper
Carboniferous beds.
- 611 **Todd** (J. E.). Is the loess of either lacustrine or semi-marine
origin?
Reviews various theories regarding the origin of the loess.
- 612 — Volcanic dust in southwestern Nebraska and in South Dakota.
Science, new ser., vol. v, pp. 61-62, 1897.
Notes occurrence in the region.
- 613 — The Quaternary of Missouri.
Science, new ser., vol. v, pp. 695-696 ($\frac{1}{2}$ p.), 1897.
Discusses certain features of the loess deposits.
- 614 — [Review of "Preliminary report on artesian waters of a portion
of the Dakotas," by N. H. Darton.]
Am. Geol., vol. xix, pp. 274-276, 1897.
- 615 — The moraines of the Missouri couteau and their attendant
deposits.
Am. Geol., vol. xx, p. 329 ($\frac{1}{2}$ p.), 1897.
Review by W. U[pham].
- 616 **Tolman** (Cyrus Fischer, jr.). [Review of "Some queries on rock
differentiation," by G. F. Becker.]
Jour. of Geol., vol. v, pp. 393-398, 1897.
- 617 — [Review of "Some mines of Rosita and Silver Cliff, Colorado,"
by S. F. Emmons.]
Jour. of Geol., vol. v, pp. 856-857, 1897.
- 617a **Tower** (George Warren, jr.), **Emmons** (S. F.) and. Economic
geology of the Butte special district [Montana].
See Emmons (S. F.) and Tower (G. W., jr.), No. 202.
- 618 **Turner** (Henry W.). Downieville folio, California.
U. S. Geol. Surv., Geol. Atlas of the U. S., Folio No. 37, 1897.
Describes the geologic history of the gold belt of California, the
occurrence and character of the auriferous slate series, the superjacent
series, the igneous rocks, the structural features of the region, and the
occurrence of gold. Includes topographic and geologic maps.
- 619 — Nomenclature of metamorphic lavas.
Science, new ser., vol. v, p. 226, 1897.
Discusses the nomenclature of these rocks.

- 620 **Turner** (Henry W.). A new amphibole-pyroxene rock and some orbicular rocks from California.

Abstract, *Science*, new ser., vol. v, p. 811 ($\frac{1}{2}$ p.), 1897.

- 621 — and **Ransome** (F. L.). Sonora folio, California.

U. S. Geol. Surv., Geol. Atlas of the U. S., Folio No. 41, 1897.

Describes the geology of the gold belt, the topography of the region, the character and distribution of the sedimentary and igneous rocks, and the occurrence of gold. Includes topographic and geologic maps.

- 622 **Tyrrell** (J. B.). The glaciation of north-central Canada.

Brit. Assoc. Adv., Rept. 1897, pp. 662-663, 1898.

Describes the glacial history of the region.

- 623 — Genesis of Lake Agassiz.

Jour. of Geol., vol. v, pp. 78-81, 1897.

Review by G. M. D[awson].

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- 624 **Udden** (J. A.). A brief description of the section of Devonian rocks exposed in the vicinity of Rock Island, Ill., with a statement of the nature of its fish remains.

Cin. Soc. Hist., Jour., vol. xix, pp. 93-95, 1897.

Gives a summary description of the several beds and discusses their correlation with other Devonian strata in the Mississippi Valley.

- 625 — Origin of the loess.

Am. Geol., vol. xx, correspondence, pp. 274-275, 1897.

Makes corrections of a report of a recent paper by the author on this subject.

- 626 **Ulrich** (E. O.). The Lower Silurian Lamellibranchiata of Minnesota.

Minn. Geol. and Nat. Hist. Surv., Paleontology, vol. iii, pt. ii, pp. 475-628, pls. xxxv-xlvi, 1897.

Gives the author's terminology, methods of study, and classification. Describes many new species.

- 627 — The lower Silurian Ostracoda of Minnesota.

Minn. Geol. and Nat. Hist. Surv., Paleontology, vol. iii, pt. ii, pp. 629-693, pls. xliii-xliv, figs. 46-52, 1897.

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- 628 — and **Scofield** (W. H.). The Lower Silurian Gastropoda of Minnesota.

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- 629 **Ulrich** (E. O.), **Winchell** (N. H.) and. The Lower Silurian deposits of the Upper Mississippi province: A correlation of the strata with those in the Cincinnati, Tennessee, New York, and Canadian provinces, and the stratigraphic and geographic distribution of the fossils.
See Winchell (N. H.) and Ulrich (E. O.), No. 730.
- 630 **Underhill** (James). Vein intersections in Clear Creek County, Colorado.
Eng. and Mg. Jour., vol. lxiv, p. 339, figs. 1-5, 1897.
Describes the vein phenomena.
- 631 — The Seaton mine, Colorado.
Eng. and Mg. Jour., vol. lxiv, p. 550, figs. 1-4, 1897.
Describes the vein system.
- 632 **Upham** (Warren). Cuyahoga pre-Glacial gorge in Cleveland, Ohio.
Geol. Soc. Am., Bull., vol. viii, pp. 7-13, 1897.
Gives the records of wells and discusses their bearing on the evidence of the pre-Glacial erosion of the region.
- 633 — Modified drift in Saint Paul, Minnesota.
Geol. Soc. Am., Bull., vol. viii, pp. 183-196, pl. lv, 1897.
Describes the glacial phenomena of the vicinity.
- 634 — [Review of "Sixteenth Annual Report of the United States Geological Survey."]
Am. Geol., vol. xix, pp. 210-214, 1897.
- 635 — Relation of the Lafayette or Ozarkian uplift of North America to Glaciation.
Am. Geol., vol. xix, pp. 339-343, 1897.
Discusses the relation of these uplifts to the glaciation of North America.
- 636 — Rhythmic accumulation of moraines by waning ice-sheets.
Am. Geol., vol. xix, pp. 411-417, 1897.
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- 637 — [Review of "Summary report of the Geological Survey department of Canada for the year 1896," by G. M. Dawson.]
Am. Geol., vol. xix, pp. 417-418, 1897.
- 638 — [Review of "The water resources of Illinois," by Frank Leverett.]
Am. Geol., vol. xix, pp. 418-419, 1897.
- 639 — [Review of "Iowa Geological Survey, vol. vi: Report on lead, zinc, artesian wells, etc."]
Am. Geol., vol. xx, pp. 271-273, 1897.

- 640 **Upham** (Warren). [Review of "Geology of Johnson County, Iowa," by Samuel Calvin.]
Am. Geol., vol. xx, p. 273, 1897.
- 641 — The Glacial Lake Agassiz.
Review by F. L[everett], Am. Geol., vol. xx, pp. 324-328, 1897; Review by T. C. C[hamberlin], Jour. of Geol., vol. v, pp. 851-853, 1897.
- 642 — [Review of "The Glacial brick clays of Rhode Island and southern Massachusetts," by N. S. Shaler, J. B. Woodworth, and G. F. Marbut.]
Am. Geol., vol. xx, pp. 328-329, 1897.
- 643 — [Review of "The moraines of the Missouri couteau and their attendant deposits," by J. E. Todd.]
Am. Geol., vol. xx, p. 329, 1897.
- 644 — [Review of "Glacial observations in the Umanak district, Greenland," by George H. Barton.]
Am. Geol., vol. xx, pp. 329-330, 1897.
- 645 — Drumlins containing or lying on modified drifts.
Am. Geol., vol. xx, pp. 383-387, 1897.
Discusses the origin of these drumlins.

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- 646 **Van Hise** (Charles R.). Studies for students: Deformation of rocks V.
Jour. of Geol., vol. v, pp. 178-193, figs. 1-6, 1897.
Describes the deformation of rocks by folding and the relations of cleavage, jointing, and bedding.
- 647 — Geology for quarrymen.
Stone, vol. xiv, pp. 134-142, 260-264, 349-355, 487-490, 586-589; vol. xv, pp. 42-46, 126-132, 274-279, 370-373, 1897.
Extract from the 16th Annual Report of the U. S. Geological Survey.
- 648 — and **Bayley** (William Shirley). The Marquette iron-bearing district of Michigan. With atlas. Including a chapter on the Republic Trough by Henry Lloyd Smyth.
U. S. Geol. Surv., Mon., vol. xxviii, 608 pp., pls. i-xxv, figs. 1-27, atlas sheets i-xxxix, 1897. Review by U. S. Grant, Jour. Geol., vol. v, pp. 402-404, 1897.
Reviews the previous explorations and literature on the region; describes the occurrence and character of the subdivisions of the Basement complex, and the Upper and Lower Marquette series, the igneous rocks, and the geologic features and structures of the Republic trough. Includes a discussion of the general geology of the region.
- 649 **Vaughan** (T. Wayland). Additional notes on the outlying areas of the Comanche series in Oklahoma and Kansas.
Am. Jour. Sci., 4th ser., vol. iv., pp. 43-50, with map, 1897.
Describes sections in various parts of the region, giving lists of fossils collected, and discusses their bearing on the relation and age of parts of the Comanche series.

- 650 **Vaughan** (T. Wayland). The asphalt deposits of western Texas.
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- 651 ——— Geologic notes on Kansas, Oklahoma, and Indian Territory.
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- 652 ——— **Hill** (R. T.) and. Geology of the Edwards plateau and Rio Grande plain adjacent to Austin and San Antonio, Texas, with reference to the occurrence of underground waters.
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- 655 **Walcott** (Charles Doolittle). The post-Pliocene elevation of the Inyo range, and the lake beds of Waucobi embayment, Inyo County, California.
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- 656 ——— Note on the genus *Lingulepis*.
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- 657 ——— Cambrian Brachiopoda: Genera *Iphidia* and *Yorkia*, with descriptions of each and of the genus *Acrothele*.
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- 658 ——— Report of the Director U. S. Geological Survey for the fiscal year ending June 30, 1897.
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- 659 **Walker** (T. L.). Geological and petrographical studies of the Sudbury nickel district [Canada].
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- 666 **Watson** (Thomas L.). Evidences of recent elevation of the southern coast of Baffinland.
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- 667 — [Review of "The relation of the fauna of the Ithaca group to the faunas of the Portage and Chemung," by Edward M. Kindle].
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- 669 — A bibliography of the geological, mineralogical, and paleontological literature of the State of Virginia.
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- 677 — [Review of "Final report on the geology of Minnesota, Paleontology, vol. iii, pt. ii."]
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- 678 — [Review of "Bulletins of American Paleontology, vol. i."]
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- 679 — Correlation of the Devonian faunas in southern Illinois.
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- 688 — Note on a fish tooth from the Upper Arisaig series of Nova Scotia.
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- 695 **Wieland** (George R.). Eopaleozoic hot springs and the origin of the Pennsylvania siliceous oolite.
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- 696 **Williams** (E. H., jr.). Greenland glaciers.
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- 697 **Williams** (Henry S.). On the southern Devonian formations.
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- 698 — [Review of "An introduction to geology," by W. B. Scott.]
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- 699 **Willis** (Bailey). Some coal fields of Puget Sound [Washington].
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Describes the physiography, stratigraphic succession, and structure of the region. Discusses the age of the beds and gives an account of the occurrence of coal.
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Am. Geol., vol. xix, pp. 144-145, 1897; Abstract, Science, new ser., vol. v, pp. 238-239, 1897.
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- 701 **Willis** (Bailey). [Review of "Elementary geology," by Ralph S. Tarr.]

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- 702 — Drift phenomena of Puget Sound and their interpretation.

Brit. Assoc. Adv. Sci., Rept. 1897, p. 653 (4 p.), 1898.

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Kan. Univ. Geol. Surv., vol. ii, pp. 237-246, pl. xxxv, 1897.

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- 704 — The Pleistocene of Kansas.

Kan. Univ. Geol. Surv., vol. ii, pp. 299-308, figs. 12-13, 1897.

Gives notes on the occurrence of vertebrates in the Pleistocene of Kansas, and discusses evidences as to the age of the Equus beds and the occurrence of the Goodnight and Blanco beds.

- 705 — Restoration of Ornithostoma (Pteranodon).

Kan. Univ. Quart., vol. vi, pp. 35-51, pl. ii, 1897.

Gives the author's classification and describes the characters of Ornithostoma.

- 706 — Notice of some vertebrate remains from the Kansas Permian.

Kan. Univ. Quart., vol. vi, pp. 53-56, figs. 1-4, 1897.

Describes fragments of Cricotus.

- 707 — A new plesiosaur from the Kansas Comanche Cretaceous.

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- 708 — Brachysaurus, a new genus of Mosasaurs.

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Describes the characters of a new genus from the Cretaceous of South Dakota.

- 709 — On the extremities of Tylosaurus.

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- 710 — Restoration of Kansas Mosasaurs.

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Describes restorations of Clidastes, Platecarpus, and Tylosaurus.

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Kan. Univ. Quart., vol. vi, pp. 177-185, pl. xx, 1897.

Describes the geologic and geographic distribution of mosasaurs and discusses their synonymy.

- 712 — A new labyrinthodont from the Kansas Carboniferous.

Kan. Univ. Quart., vol. vi, pp. 209-210, pl. xxi, 1897.

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- 713 **Williston** (S. W.). Vertebrates from the Kansas Permian.
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- 714 — [Review of "The University Geological Survey of Kansas, Vol. II," by Erasmus Haworth and assistants.]
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- 716 — The Koochiching granite.
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- 719 — [Review of "Elementary Geology," by Ralph S. Tarr.]
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- 720 — [Review of "Glaciers of North America," by I. C. Russell.]
Am. Geol., vol. xix, p. 278 ($\frac{1}{2}$ p.), 1897.
- 721 — Some new features in the geology of northeastern Minnesota.
Am. Geol., vol. xx, pp. 41-51, 1897.
Describes recent observations on the transition from crystalline schists to the Laurentian, the relations of the Stuntz conglomerate, and the nature and position of the coarse conglomerate in Puckwunge valley.
- 722 — [Review of "Papers and notes on the genesis and matrix of the diamond," by H. C. Lewis.]
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- 723 — Light in the East.
Am. Geol., vol. xx, Editorial comment, pp. 128-129, 1897.
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- 724 — [Review of "The Newark system, Report of progress," by H. B. Kimmell.]
Am. Geol., vol. xx, pp. 134-135, 1897.

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- 727 — The Fisher meteorite, chemical and mineral composition. *Am. Geol.*, vol. xx, pp. 316-317, 1897.
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- 728 — The Taconic according to Renevier. *Am. Geol.*, vol. xx, Editorial Comment, pp. 405-407, 1897.
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- 729 — Minnesota quartzite. *Stone*, vol. xiv, pp. 122-125, 1897.
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Discusses the evidence for the correlation of the various subdivisions of the Lower Silurian group in the areas named. Gives a list of fossils from different horizons in the several areas.
- 731 **Winslow** (Arthur). [Review of geology and mining industry of the Cripple Creek district, Colorado, by Whitman Cross and R. A. F. Penrose, jr.] *Jour. of Geol.*, vol. v, pp. 197-203, 1897.
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- 733 — and **Brooks** (Alfred Hulse). The age of the Franklin White limestone of Sussex County, New Jersey. *U. S. Geol. Surv., 18th Ann. Rept.*, pp. 431-457, pl. lxxxiii, fig. 77-81, 1898; *Abstract, Geol. Soc. Am., Bull.*, vol. viii, p. 397, 1897.
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Gives a sketch of the life of Professor Cope.

- 736 **Woodworth** (Jay Backus). Unconformities of Marthas Vineyard and of Block Island.

Geol. Soc. Am., Bull., vol. viii, pp. 197-212, pl. 16, 1897.

Describes the character and occurrence of the Tertiary strata and the unconformities of these islands.

- 737 — Charles Thomas Jackson.

Am. Geol., vol. xx, pp. 69-110, pl. iv, 1897.

Gives an account of the life and work of Jackson and a list of his published papers.

- 738 — [Review of "A treatise on rocks, rock weathering, and soils," by George P. Merrill.]

Science, new ser., vol. v, pp. 995-997, 1897.

- 739 **Woolman** (Lewis). Artesian and other bored wells, and also dug wells, in southern New Jersey.

N. J. Geol. Surv., Rept. 1896, pp. 97-180, 1897.

Gives well records of the strata penetrated, from various parts of the region.

- 740 — Bored wells, mostly in northern New Jersey.

N. J. Geol. Surv., Rept. 1896, pp. 181-200, 1897.

Presents reports on well records of the region.

- 741 — Stratigraphy of the Fish House black clay and associated gravels. Fossil horse, Unionidæ, and plant remains.

N. J. Geol. Surv., Rept. 1896, pp. 201-254, pls. x-xviii, 1897.

Reviews the fossil and stratigraphic evidences as to the age of the bed. Includes records of well borings.

- 742 **Wortman** (J. L.). The Ganodonta and their relationship to the Edentates.

Am. Mus. Nat. Hist., Bull., vol. ix, pp. 59-110, 36 figs., 1897.

Discusses the relationships of the two groups.

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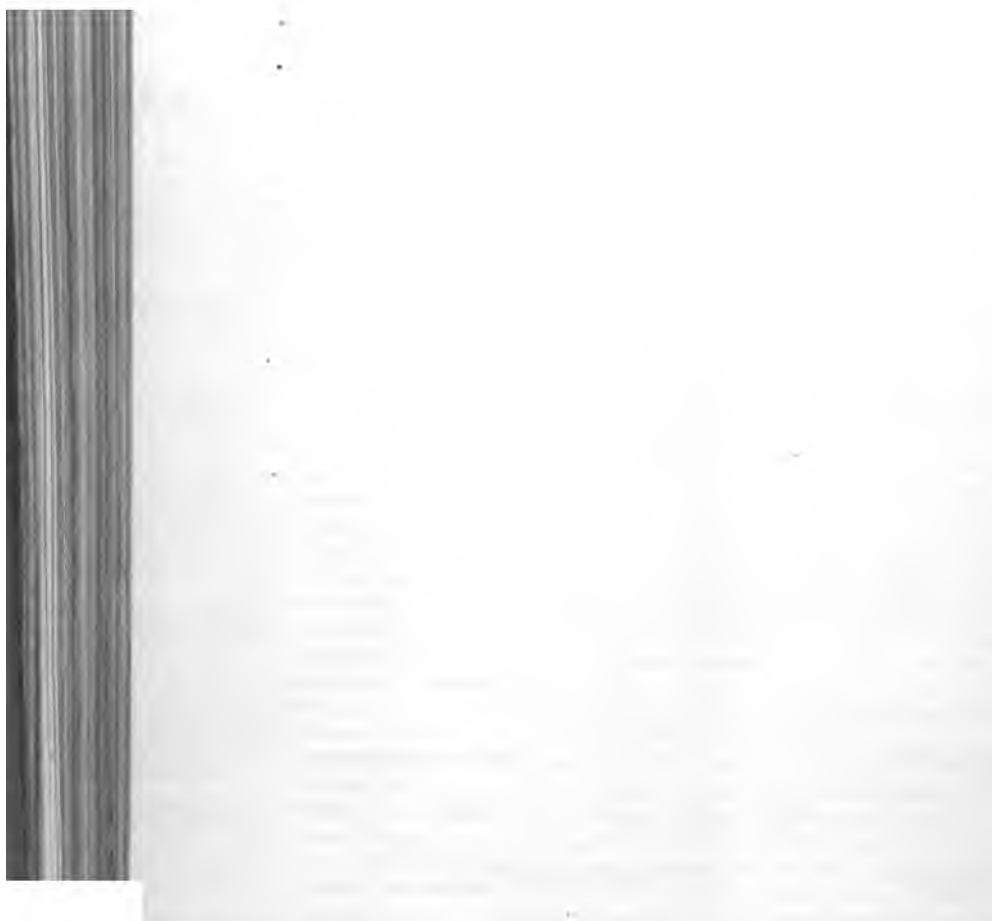
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 Volcanic diat, Todd, No. 612.
 Negaunee formation, Smyth, No. 572.
 Negaunee formation, Van Hise and Bayley, No. 648.
 Nematopora bed, Winchell and Ulrich, No. 730.

Nevada.

- Coal fields of Esmeralda County, Knapp, No. 341.
 Newark formation, Clark, No. 129.
 Newark system, Kummel, Nos. 349, 350.

New Hampshire.

- Porphyritic gneiss, Daly, No. 164.
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- A new fossil Monocotyledon, Hollick, No. 302.
- Archean geology, Wolff, No. 732.
- Artesian and other bored wells, Woolman, No. 739.
- Bored wells in northern New Jersey, Woolman, No. 740.
- Building materials of Pennsylvania, Hopkins, No. 307.
- Fish House black clay, Woolman, No. 741.
- Franklin white limestone, Wolff and Brooks, No. 733.
- Geology of the sand hills, Clark and Shattuck, No. 131.
- Geology of vicinity of New York, Merrill, No. 426.
- Newark system, Kummel, Nos. 349, 350.
- Origin and age of relic-bearing sand at Trenton, Salisbury, No. 518.
- Surface geology, Salisbury and Knapp, No. 522.
- Upper Cretaceous formations, Clark, No. 128.

Newman limestone, Keith, No. 318.

New Mexico.

- Easternmost volcanoes of the United States, Hill, No. 285.
- Geology of a mining camp, Herrick, No. 274.
- Jura and Neocomian, Marcou, No. 403.
- Mogollon range, Andersen, No. 23.
- Note on easternmost volcanoes of United States, Marcou, No. 406.
- Note on a new meteorite, Foote, No. 223.
- Turquoise mining, Fenderson, No. 216.

New red, Marcou, No. 405.

New Richmond sandstone, Norton, No. 446.

New York.

- Correlation of Devonian faunas, Weller, No. 679.
- Current action in the Ordovician, Ruedemann, No. 505.
- Eastern lobe of ice sheet, Hitchcock, No. 294.
- Erian drainage, Gilbert, No. 231.
- Fossil grass from Staten Island, Hollick, No. 299.
- Geologic fault at Jamesville, Schneider, No. 538.
- Geology of vicinity of New York, Merrill, No. 426.
- Glacial deposits in Chenango Valley, Brigham, No. 94.
- Glacial geology of western New York, Fairchild, No. 210.
- Hempstead Plains, Long Island, Bryson, No. 98.
- Lake Adirondack, Taylor, No. 603.
- Lake Warren shorelines, Fairchild, No. 211.
- Lower Silurian deposits, Winchell and Ulrich, No. 730.
- Magnetites near Port Henry, Kemp, No. 321.
- Pseudomorphs, Smyth, No. 571.
- Road materials, Merrill, No. 427.
- Stratigraphic classification, Marcou, No. 404.

Niagara, Marcou, No. 404.

Niagara limestone, Foerste, No. 219.

Nicaragua.

- Segovia gold region, Miller, No. 430.

Niobrara, Beyer, No. 65.

Niobrara, Logan, No. 388.

Niobrara, Williston, No. 703.

Niobrara formation, Gilbert, No. 230.

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- Introduction of new terms in geology, Branner, No. 82.
- New terms in geology, Branner, No. 83.
- Rules and misrules in stratigraphic classification, Marcou, No. 404.

North Carolina.

- Corundum and basic magnesian rocks, Lewis, No. 380.
- Gold deposits of North Carolina, Nitze and Hanna, No. 445.
- Gold ores of the Carolinas, Nitze, No. 444.
- Limonites of Cherokee County, Nitze, No. 443.
- Magnetite belt, Kimball, No. 334.
- North Carolina minerals, Pratt, No. 484.
- On wellsite, Pratt and Foote, No. 485.
- River adjustments, Weaver, No. 671.
- Taconic and Huronian rocks, Nitze, No. 442.

Novaculite series, Ashley, No. 24.

Nulato sandstone, Spurr, No. 575.

Nussebaum formation, Gilbert, No. 230.

Ohio.

- A pre-Glacial valley, Tight, No. 609.
- Changes in drainage in southern Ohio, Leverett, No. 377.
- Cuyahoga pre-Glacial gorge, Upham, No. 632.
- Dinichthys kepleri, Claypole, No. 138.
- Lower Silurian deposits, Winchell and Ulrich, No. 730.
- Paleontology of Cincinnati group, James, No. 312.
- Paleozoic vertebrata, Cope, No. 149.
- Pre-Glacial Cuyahoga valley, Pierce, No. 479.
- Pre-Glacial drainage, Tight, No. 608.
- Water resources, Leverett, No. 374.

Oklahoma.

- Cimarron series, Cragin, No. 151.
- Comanche series, Vaughan, No. 649.
- Old red sandstone, Marcou, No. 404.

Oregon.

- Crater Lake, Diller, No. 178.
- Orthis bed, Sardeson, No. 524.
- Orthis bed, Winchell and Ulrich, No. 730.
- Orthisina bed, Sardeson, No. 524.
- Orthoceras bed, Sardeson, No. 524.
- Osgood limestone, Foerste, No. 219.
- Oswego, Winchell and Ulrich, No. 730.
- Owen (Richard), Jordan, No. 317.
- Oxnior sandstone, McCalley, No. 393.

Paleontology.

General.

- Affinities of Hesperornis, Marsh, No. 408.
- American fossil brachiopoda, Schuchert, No. 539.
- Cephalic homologies, Minot, No. 433.
- Characters of Macropetalichthys, Eastman, No. 190.
- Classification of trilobites, Beecher, No. 57.
- Comparative study of paleontology and phylogeny, Smith, No. 566.
- Cryptozoön and other ancient fossils, Dawson, No. 176.
- Development of Glyptoceras, Smith, No. 566.

Paleontology—Continued.

Genera and species described—Continued.

- Anomalophyllites bridgetonensis* n. sp., Hol-
lok, No. 302.
Anomia umbonata n. sp., Guppy and Dall, No.
255.
Aparchites Jones, Ulrich, No. 627.
 arrectus n. sp., Ulrich, No. 627.
 chatfieldensis n. sp., Ulrich, No. 627.
 ellipticus n. sp., Ulrich, No. 627.
 imbriatus Ulrich, Ulrich, No. 627.
 granilabatus Ulrich, Ulrich, No. 627.
 millepunctatus Ulrich, Ulrich, No. 627.
 minutissimus Hall var. *trentonensis* n.
 var., Ulrich, No. 627.
 parvulus Jones, Whiteaves, No. 687.
 whiteavessi Jones, Whiteaves, No. 687.
Apodidae Burmeister (emend after Packard),
Schuchert, No. 540.
Apodina n. subfam., Schuchert, No. 540.
Archeozoon, Dawson, No. 176.
Archinacella n. gen., Ulrich and Scofield, No.
628.
 cingulata n. sp., Ulrich and Scofield, No.
 628.
 deleta Sardeeson sp., Ulrich and Scofield,
 No. 628.
 depressa n. sp., Ulrich and Scofield, No.
 628.
 instabilis Billings var. *incurva*, n. var.,
 Ulrich and Scofield, No. 628.
 perovalis Whitfield sp., Ulrich and Sco-
 field, No. 628.
 powersi n. sp., Ulrich and Scofield, No. 628.
 richmondensis n. sp., Ulrich and Scofield,
 No. 628.
 rotunda n. sp., Ulrich and Scofield, No. 628.
 rugatina n. sp., Ulrich and Scofield, No.
 628.
 semicarinata n. sp., Ulrich and Scofield,
 No. 628.
 stimulatrix n. sp., Ulrich and Scofield, No.
 628.
 subrotunda n. sp., Ulrich and Scofield, No.
 628.
 valida Sardeeson sp., Ulrich and Scofield,
 No. 628.
Argea wesenbergensis var. *paulianus* n. var.,
Clarke, No. 133.
Aristerella n. gen., Ulrich, No. 628.
 nitidula n. sp., Ulrich, No. 628.
Asaphus
 gigas DeKay, Whiteaves, No. 687.
 (*Isotelus*) *susae* Whitfield, Whiteaves, No.
 687.
Ascoceas costulatum Whiteaves, Whiteaves,
No. 687.
Astrocyttides ottawaensis n. sp., Whiteaves,
No. 689.
Aulacopella winnipegensis Rauff, Whiteaves,
No. 687.
Barrettia Woodward, Whitfield, No. 693.
 multilirata n. sp., Whitfield, No. 693.
 sparcillirata n. sp., Whitfield, No. 693.
Bathyrus
 extans Hall (sp.), 1847, Clarke, No. 133.
 perkinsi n. sp., Whitfield, No. 691.
 schucherti n. sp., Clarke, No. 133.
 spiniger Hall (sp.), 1847, Clarke, No. 133.

Paleontology—Continued.

Genera and species described—Continued.

- Batocrinus*
 douglasi n. sp., Miller and Gurley, No. 431.
 reliquus n. sp., Miller and Gurley, No. 431.
 reservatus n. sp., Miller and Gurley, No.
 431.
 rotuliformis n. sp., Miller and Gurley, No.
 431.
 rusticellus n. sp., Miller and Gurley, No.
 431.
 (?) *rusticus* n. sp., Miller and Gurley, No.
 431.
 scitulus n. sp., Miller and Gurley, No. 431.
 senex n. sp., Miller and Gurley, No. 431.
 sharonensis n. sp., Miller and Gurley, No.
 431.
Bellerophon Montfort, Ulrich and Scofield,
No. 628.
 bilineatus n. sp., Ulrich and Scofield, No.
 628.
 capax n. sp., Ulrich and Scofield, No. 628.
 clausus n. sp., Ulrich and Scofield, No. 628.
 mobri Miller, Ulrich and Scofield, No. 628.
 platystoma Meek and Worthen, Ulrich
 and Scofield, No. 628.
 recurvus n. sp., Ulrich and Scofield, No.
 628.
 similis n. sp., Ulrich and Scofield, No. 628.
 subangularis n. sp., Ulrich and Scofield,
 No. 628.
 subglobulus n. sp., Ulrich and Scofield,
 No. 628.
 troostii (d'Orbigny) Safford, Ulrich and
 Scofield, No. 628.
 var. *burginensis* n. var., Ulrich and
 Scofield, No. 628.
Bellerophon Montfort, Ulrich and Scofield, No. 628.
Benthonella turbinata n. sp., Guppy and Dall,
No. 255.
Betula, Knowlton, No. 345.
 equalis Lx., Knowlton, No. 345.
Beyrichia McCoy, Ulrich, No. 627.
 initialis n. sp., Ulrich, No. 627.
 nova scotica, Dawson, No. 174.
Bittium (Styliferina) *praeformatum* n. sp.,
Guppy and Dall, No. 255.
Bollia Jones and Holl, Ulrich, No. 627.
 unguloidea n. sp., Ulrich, No. 627.
 subaequata n. sp., Ulrich, No. 627.
Brachysaurus n. gen., Williston, No. 708.
 overtoni Williston, Williston, No. 708.
Bronteus lunatus Billings, 1854, Clarke, No.
133.
Bucanella Meek, Ulrich and Scofield, No. 628.
Bucania Hall, Ulrich and Scofield, No. 628.
 champlainensis n. sp., Whitfield, No. 691.
 crassa n. sp., Ulrich and Scofield, No. 628.
 elliptica n. sp., Ulrich and Scofield, No.
 628.
 emmonsii n. sp., Ulrich and Scofield, No.
 628.
 frankfortensis n. sp., Ulrich and Scofield,
 No. 628.
 halli n. sp., Ulrich and Scofield, No. 628.
 lindaleyi Safford, Ulrich and Scofield, No.
 628.

Paleontology—Continued.

Genera and species described—Continued.

Bucania—Continued

- micronema* n. sp., Ulrich and Scofield, No. 628.
minnesotensis n. sp., Ulrich and Scofield, No. 628.
nana n. sp., Ulrich and Scofield, No. 628.
 var. *subpatula* n. var., Ulrich and Scofield, No. 628.
nashvillensis n. sp., Ulrich and Scofield, No. 628.
peracuta n. sp., Ulrich and Scofield, No. 628.
punctifrons Emmons, Ulrich and Scofield, No. 628.
rugata n. sp., Ulrich and Scofield, No. 628.
simulatrix n. sp., Ulrich and Scofield, No. 628.
singularis n. sp., Ulrich and Scofield, No. 628.
subangulata n. sp., Ulrich and Scofield, No. 628.
sublata n. sp., Ulrich and Scofield, No. 628.
Bucanopsis n. gen., Ulrich and Scofield, No. 628.
carinifera n. sp., Ulrich and Scofield, No. 628.
Bullia buccinoides n. sp., Merriam, No. 425.
Bumastus
 orbicaudatus Billings (sp.), 1859, Clarke, No. 133.
 trentonensis Emmons (sp.), 1842, Clarke, No. 133.
Buthotrephis pergracilis Dawson, Dawson, No. 175.
Byasonychia n. gen., Ulrich, No. 626.
 intermedia Meek and Worthen, Ulrich, No. 626.
 tenulistriata n. sp., Ulrich, No. 626.
Bythocypris Brady, Ulrich, No. 627.
 cylindrica Hall, Ulrich, No. 627.
 (?) *curta* n. sp., Ulrich, No. 627.
 granti n. sp., Ulrich, No. 627.
 (?) *robusta* n. sp., Ulrich, No. 627.
Cadulus parianus n. sp., Guppy and Dall, No. 255.
Calamodon Cope, Wortman, No. 742.
Calapocia canadensis Billings, Whiteaves, No. 687.
Callierinus, Weller, No. 681.
Calliostoma lignitica n. sp., Cooper, No. 148.
Calops
 consors n. sp., Marsh, No. 410.
 cristatus, Marsh, No. 410.
Calymmene callicephala Green, 1832, Clarke, No. 133.
Cameroceas Conrad, 1839, Clarke, No. 134.
 heunepini n. sp., Clarke, No. 134.
 proteiforme Hall, 1847, Clarke, No. 134.
 n. sp., Clarke, No. 134.
Cancellaria
 lanceolata n. sp., Aldrich, No. 19.
 maricana n. sp., Aldrich, No. 18.
 rowelli n. sp., Guppy and Dall, No. 255.

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Paleontology—Continued.

Genera and species described—Continued.

- Canistocrinus* Wachsmuth and Springer, James, No. 312.
 pattersoni S. A. Miller, James, No. 312.
 richardsoni Wetherby, James, No. 312.
Caprina jamaicensis n. sp., Whitfield, No. 692.
Caprinella
 occidentalis n. sp., Whitfield, No. 692.
 quadrangularis n. sp., Whitfield, No. 692.
Caprinula gigantea n. sp., Whitfield, No. 692.
Carbonia
 bairdioides, Dawson, No. 74.
 elongata, Dawson, No. 174.
 fabulina, Dawson, No. 174.
Cardita alticosta Gabb, Cooper, No. 147.
Carinaria caperata n. sp., Guppy and Dall, No. 255.
Carinaropsis Hall, Ulrich and Scofield, No. 628.
 acuta n. sp., Ulrich and Scofield, No. 628.
 cunula Hall, Ulrich and Scofield, No. 628.
 cymbula Hall, Ulrich and Scofield, No. 628.
 explanata n. sp., Ulrich and Scofield, No. 628.
 minima n. sp., Ulrich and Scofield, No. 628.
 phalera Sardeason, Ulrich and Scofield, No. 628.
Cassia obtusa n. sp., Knowlton, No. 345.
Celastrus lindgreni n. sp., Knowlton, No. 345.
Ceratopsis n. gen., Ulrich, No. 627.
 chambersi Miller, Ulrich, No. 627.
 var. *robusta* n. var., Ulrich, No. 627.
Ceraurus pleurexanthemus Green, 1832, Clarke, No. 133.
Cerithiopsis
 conica n. sp., Aldrich, No. 18.
 dalli n. sp., Aldrich, No. 18.
 fluvialis n. sp., Aldrich, No. 18.
Cerithium delicatulum n. sp., Aldrich, No. 18.
Chætetes perantiquus n. sp., Whiteaves, No. 687.
Chondrites
 cuneatus n. sp., Whiteaves, No. 687.
 cupressinus Whiteaves, Whiteaves, No. 687.
 gracillimus Whiteaves, Whiteaves, No. 687.
 metiasicus n. sp., Dawson, No. 175.
 (?) *(Bythotrephis) patulus*, Whiteaves, No. 687.
Chriacus Cope, Matthew, No. 418.
 baldwini (Cope), Matthew, No. 418.
 pelvidens (Cope), Matthew, No. 418.
 schlosserianus Cope, Matthew, No. 418.
 truncatus Cope, Matthew, No. 418.
Clanodon Scott, Matthew, No. 418.
 corrugatus (Cope), Matthew, No. 418.
 ferox (Cope), Matthew, No. 418.
 (?) *protogonioides* (Cope), Matthew, No. 418.
Clathrospira n. gen., Ulrich and Scofield, No. 628.
 conica n. sp., Ulrich and Scofield, No. 628.
 convexa n. sp., Ulrich and Scofield, No. 628.
 subconica Hall, Ulrich and Scofield, No. 628.

Paleontology—Continued.

Genera and species described—Continued.*Clathurella*

- amicta* n. sp., Guppy and Dall, No. 255.
vendryesi n. sp., Guppy and Dall, No. 255.

Clementia (?) *taniosa* n. sp., Guppy and Dall, No. 255.

Clidastes, Williston, No. 710.

Clidophorus Hall, Ulrich, No. 626.

consuetus Ulrich, Ulrich, No. 626.

neglectus Hall, Ulrich, No. 626.

Clinoceras *mumiasiforme* Whitfield, 1878, Clarke, No. 133.

Clinopiatha (?) *antiqua* n. sp., Whiteaves, No. 687.

Clionychia Ulrich, Ulrich, No. 626.

erecta Hall, Ulrich, No. 626.

lamellosa Hall, Ulrich, No. 626.

nitida n. sp., Ulrich, No. 626.

rhomboidea Ulrich, Ulrich, No. 626.

undata Emmons, Ulrich, No. 626.

Clitambonites *diversa* Shaler, Whiteaves, No. 687.

Cœlocaulus (Ehleri, Ulrich and Scofield, No. 628.

neglectus n. sp., Ulrich and Scofield, No. 628.

ehleri n. sp., Ulrich and Scofield, No. 628.

Colpomya n. gen., Ulrich, No. 626.

demissa n. sp., Ulrich, No. 626.

Columnaria *alveolata* Goldfuss, Whiteaves, No. 687.

Conolichas *cornutus* n. sp., Clarke, No. 133.

Corycetes Cope, Wortman, No. 742.

Conradella n. gen., Ulrich and Scofield, No. 628.

bellula n. sp., Ulrich and Scofield, No. 628.

dyeri Hall, Ulrich and Scofield, No. 628.

var. *cellulosa* n. var., Ulrich and Scofield, No. 628.

elegans Miller, Ulrich and Scofield, No. 628.

imbriata n. sp., Ulrich and Scofield, No. 628.

grandis n. sp., Ulrich and Scofield, No. 628.

imbricata Meek and Worthen, Ulrich and Scofield, No. 628.

obliqua n. sp., Ulrich and Scofield, No. 628.

similis n. sp., Ulrich and Scofield, No. 628.

triangularis n. sp., Ulrich and Scofield, No. 628.

Conularia *asperata* Billings, Whiteaves, No. 687.

Cornulina *armigera*, Aldrich, No. 18.

Crangopsis *vermiformis* (Meek), Ortman, No. 456.

Crania *chesterensis* n. sp., Miller and Gurley, No. 431.

Crassatella *decliva*, Aldrich, No. 18.

Crassatellites (*Crassinella*) *guppyi* n. sp., Guppy and Dall, No. 255.

Cricotus, Williston, No. 706.

Cryptodiscus Hall, Weller, No. 681.

Paleontology—Continued.

Genera and species described—Continued.*Cryptodiscus*—Continued.

bilobus n. sp., Weller, No. 680.

corrugatus n. sp., Weller, No. 680.

digitatus n. sp., Weller, No. 680.

hydel n. sp., Weller, No. 680.

Cryptozoon

boreale, Dawson, No. 176.

occidentale n. sp., Dawson, No. 176.

Ctenacanthus

acutus n. sp., Eastman, No. 188.

xiphias, Eastman, No. 188.

Ctenerpeton

alveolatum n. gen. et sp., Cope, No. 149.

tenuicorne Cope, Cope, No. 149.

Ctenobolbina Ulrich, Ulrich, No. 627.

crassa Ulrich, Ulrich, No. 627.

fulcrata n. sp., Ulrich, No. 627.

Ctenodontus Salter, Ulrich, No. 626.

albertina n. sp., Ulrich, No. 626.

alta Hall, Ulrich, No. 626.

calvini n. sp., Ulrich, No. 626.

carinata n. sp., Ulrich, No. 626.

compressa Ulrich, Ulrich, No. 626.

fecunda Hall, Ulrich, No. 626.

filistriata n. sp., Ulrich, No. 626.

gibberula Salter, Ulrich, No. 626.

hamburgensis Walcott, Ulrich, No. 626.

intermedia Ulrich, Ulrich, No. 626.

logani Salter, Ulrich, No. 626.

longa Ulrich, Ulrich, No. 626.

madisonensis n. sp., Ulrich, No. 626.

medialis n. sp., Ulrich, No. 626.

nasuta Hall, Ulrich, No. 626.

nitida Ulrich, Ulrich, No. 626.

obliqua Hall, Ulrich, No. 626.

oviformis n. sp., Ulrich, No. 626.

planodorsata Ulrich, Ulrich, No. 626.

recurva Ulrich, Ulrich, No. 626.

scofieldi n. sp., Ulrich, No. 626.

similis Ulrich, Ulrich, No. 626.

simulatrix n. sp., Ulrich, No. 626.

socialis n. sp., Ulrich, No. 626.

subnasuta n. sp., Ulrich, No. 626.

Cuneamya Hall and Whitfield, Ulrich, No. 626.

oblonga n. sp., Ulrich, No. 626.

truncatula n. sp., Ulrich, No. 626.

Cyathophycus *quebecense* Dawson, Dawson, No. 175.

Cybele *winchelli* n. sp., Clarke, No. 133.

Cyclonema Hall, Ulrich and Scofield, No. 628.

bilix Conrad, Ulrich and Scofield, No. 628.

gracile n. sp., Ulrich and Scofield, No. 628.

humerosum n. sp., Ulrich and Scofield, No. 628.

inflatum n. sp., Ulrich and Scofield, No. 628.

mediale n. sp., Ulrich and Scofield, No. 628.

pyramdatum James, Ulrich and Scofield, No. 628.

simulans n. sp., Ulrich and Scofield, No. 628.

transversum n. sp., Ulrich and Scofield, No. 628.

Paleontology—Continued.

Genera and species described—Continued.

Cyclonema—Continued.

- varicosum* Hall, Ulrich and Scofield, No. 628.
 (?) *Holopea* *limatum* n. sp., Ulrich and Scofield, No. 628.
Cyllichna aldrichi, Aldrich, No. 18.
Cyphaspis galenensis n. sp., Clarke, No. 133.
Cyrtoceras Goldfuss 1832, Clarke, No. 134.
 billingsi Salter 1859, Clarke, No. 134.
 camurum Hall 1847, Clarke, No. 134.
 corniculum Hall 1862, Clarke, No. 134.
 featherstonhaughii n. sp., Clarke, No. 134.
 hallianum d'Orbigny 1850, Clarke, No. 134.
 houghtoni n. sp., Clarke, No. 134.
 laticurvatum Whiteaves, Whiteaves, No. 687.
 manitobense Whiteaves, Whiteaves, No. 687.
 minneapolis n. sp., Clarke, No. 134.
 noleus Hall 1861, Clarke, No. 134.
 norwoodi n. sp., Clarke, No. 134.
 scofieldi n. sp., Clarke, No. 134.
 shumardi n. sp., Clarke, No. 134.
Cyrtoceras (?) *schoolecrafti* n. sp., Clarke, No. 134.
Cyrtodonta Billings, Ulrich, No. 626.
 affinis n. sp., Ulrich, No. 626.
 ampla n. sp., Ulrich, No. 626.
 billingsi n. sp., Ulrich, No. 626.
 canadensis Billings, Whiteaves, No. 687.
 cingulata Ulrich, Ulrich, No. 626.
 gibbera n. sp., Ulrich, No. 626.
 glabella Ulrich, Ulrich, No. 626.
 grandis Ulrich, Ulrich, No. 626.
 janesvillensis n. sp., Ulrich, No. 626.
 obesa n. sp., Ulrich, No. 626.
 obliqua Meek and Worthen, Ulrich, No. 626.
 oviformis Ulrich, Ulrich, No. 626.
 parva n. sp., Ulrich, No. 626.
 persimilis n. sp., Ulrich, No. 626.
 rotulata n. sp., Ulrich, No. 626.
 subovata n. sp., Ulrich, No. 626.
 tenella Ulrich, Ulrich, No. 626.
Cyrtodontidae n. fam., Ulrich, No. 626.
Cyrtolites Conrad, Ulrich and Scofield, No. 628.
 carinatus Miller, Ulrich and Scofield, No. 628.
 (?) *dilatatus* n. sp., Ulrich and Scofield, No. 628.
 diajunctus n. sp., Ulrich and Scofield, No. 628.
 ornatus Conrad, Ulrich and Scofield, No. 628.
 parvus n. sp., Ulrich and Scofield, No. 628.
 retrosus n. sp., Ulrich and Scofield, No. 628.
 var. allmorensis n. var., Ulrich and Scofield, No. 628.
Cyrtometopus n. gen., Ulrich and Scofield, No. 628.
 nitidula Ulrich, Ulrich and Scofield, No. 628.
 scofieldi n. sp., Clarke, No. 133.

Paleontology—Continued.

Genera and species described—Continued.

- Cyrtospira* n. gen., Ulrich and Scofield, No. 628.
 bicurvata n. sp., Ulrich and Scofield, No. 628.
 tortilis n. sp., Ulrich and Scofield, No. 628.
 wykoffensis n. sp., Ulrich and Scofield, No. 628.
Cythara
 gibba n. sp., Guppy and Dall, No. 255.
 guppyi n. sp., Guppy and Dall, No. 255.
 mucronata n. sp., Guppy and Dall, No. 255.
 obtusa n. sp., Guppy and Dall, No. 255.
Cytherea
 newcombei n. sp., Merriam, No. 425.
 vancouverensis n. sp., Merriam, No. 425.
Cytherella Jones and Bosquet, Ulrich, No. 627.
 (?) *rugosa* Jones, Ulrich, No. 627.
 var. arcta n. var., Ulrich, No. 627.
 (?) *subrotunda* n. sp., Ulrich, No. 627.
Daemonelix, No. 35.
Dalmanites *achates* Billings 1860, Clarke, No. 133.
Diceratherium *proavium*, Hatcher, No. 262.
Dichocrinus *bozemanensis* n. sp., Miller and Gurley, No. 431.
Dicranella n. gen., Ulrich, No. 627.
 bicornis n. sp., Ulrich, No. 627.
 marginata n. sp., Ulrich, No. 627.
 (?) *simplex* n. sp., Ulrich, No. 627.
 spinosa n. sp., Ulrich, No. 627.
Didymictis
 haydenianus Cope, Matthew, No. 418.
 protenus varaltidens Cope, Osborn, No. 458.
Dilobella n. gen., Ulrich, No. 627.
 typa n. sp., Ulrich, No. 627.
Dimetrodon *incisivus* Cope, Case, No. 108.
Dimya *grandis* n. sp., Guppy and Dall, No. 255.
Dinichthys *kepleri* n. sp., Claypole, No. 138.
Dipeltinae n. subfam., Schuchert, No. 540.
Dipeltis Packard (emend), Schuchert, No. 540.
 carri n. sp., Schuchert, No. 540.
 diplodiscus Packard, Schuchert, No. 540.
Diphyphyllum *stokesi*, Edwards and Haimé, Whiteaves, No. 687.
Discoceras *canadense* n. sp., Whiteaves, No. 687.
Dissacus
 navajovius Cope, Matthew, No. 418.
 saurognathus Wortman, Matthew, No. 418.
Distichium *capillaceum*, Penhallow, No. 468.
Divaricella *prevaricata* n. sp., Guppy and Dall, No. 255.
Dolatocrinus *neglectus* n. sp., Miller and Gurley, No. 431.
Dorycrinus *suboviformis* n. sp., Miller and Gurley, No. 431.
Dosinia *mercenaroides*, Aldrich, No. 18.
Drepanella Ulrich, Ulrich, No. 627.
 bigeneris n. sp., Ulrich, No. 627.
 bilateralis n. sp., Ulrich, No. 627.
Dryopteris *idahoensis* n. sp., Knowlton, No. 345.

Paleontology—Continued.

Genera and species described—Continued.

- Eccliomphalus compressus* n. sp., Whitfield, No. 661.
Eccliomphalus Portlock, Ulrich and Scofield, No. 628.
 contignus n. sp., Ulrich and Scofield, No. 628.
 undulatus Hall, Ulrich and Scofield No. 628.
 subrotundus n. sp., Ulrich and Scofield, No. 628.
Ecyllopterus Kemele, Ulrich and Scofield, No. 628.
 beloitensis n. sp., Ulrich and Scofield No. 628.
 owenianus Meek and Worthen, Ulrich and Scofield, No. 628.
Edmondia (?) *vetusta* n. sp., Whiteaves No. 687.
Enercinurus
 cristatus n. sp., Clarke, No. 133.
 (?) *raricostatus* Walcott 1877, Clarke, No. 133.
 vannulus n. sp., Clarke, No. 133.
Endoceras
 subannulatum Whitfield, Whiteaves, No. 687.
 (*Narthecoceras*) *crassiphonatum* Whiteaves, Whiteaves, No. 687.
 simpsoni Billings, Whiteaves No. 687.
Endodesma n. gen., Ulrich, No. 626.
 compressum n. sp., Ulrich, No. 626.
 cuneatum n. sp., Ulrich, No. 626.
 orthonotum Meek and Worthen, Ulrich, No. 626.
 postlatum n. sp., Ulrich, No. 626.
 undosum n. sp., Ulrich, No. 626.
Extomaria n. gen., Ulrich and Scofield, No. 628.
 canalifera n. sp., Ulrich and Scofield, No. 628.
 dryope Billings, Ulrich and Scofield, No. 628.
 elevata n. sp., Ulrich and Scofield, No. 628.
 labiosa n. sp., Ulrich and Scofield, No. 628.
 supracingulata Billings, Ulrich and Scofield, No. 628.
 vicina n. sp., Ulrich and Scofield, No. 628.
Equisetum sp., Knowlton, No. 345.
Equus complicatus Leidy, Woolman, No. 741.
Escharopora ramosa? Ulrich, var. or n. sp., Whiteaves, No. 687.
Estheria dawsoni, Dawson, No. 174.
Eucalyptus gouldii, n. sp., Ward, No. 661.
Eucheilodon creno-carinatus, Aldrich No. 18.
Euconospira planibasis-n. sp., Ulrich and Scofield, No. 628.
Eulima
 egregia n. sp., Guppy and Dall, No. 255.
 (*Liostraca*) *nobilis* n. sp., Guppy and Dall, No. 255.
Euphemus McCoy, Ulrich and Scofield, No. 628.
Eurotorgia Cope, Matthew, No. 418.
 minor n. sp., Matthew, No. 418.
 puercensis (Cope), Matthew, No. 418.
Eurychilina Ulrich Ulrich, No. 627.
 reticulata Ulrich, Ulrich, No. 627.
 var. *incurva* n. var., Ulrich, No. 627.

Paleontology—Continued.

Genera and species described—Continued.

- Eurychilina*—Continued.
 (?) *subequata* n. sp., Ulrich, No. 627.
 subradiata Ulrich, Ulrich, No. 627.
 (?) *symmetrica* n. sp., Ulrich, No. 627.
 ventrosa n. sp., Ulrich, No. 627.
Eurymya n. gen., Ulrich, No. 626.
 plana Hall, Ulrich, No. 626.
Eurystomites
 plicatus Whiteaves, Whiteaves, No. 687.
 undatus Emmons var. *occidentalis* Hall 1861, Clarke, No. 124.
Fabella oblonga n. sp., Aldrich, No. 18.
Favosites prolificus Billings, Whiteaves, No. 687.
Ficus ungeri Lx., Knowlton, No. 345.
Fossarus (*Gottoina*) *mundulus* n. sp., Guppy and Dall, No. 255.
Fucus digitatus n. sp., Penhallow, No. 468.
Fulgur carica, Woolman, No. 741.
Fusispira Hall, Ulrich and Scofield, No. 628.
 angusta n. sp., Ulrich and Scofield, No. 628.
 var. *subplana* n. var., Ulrich and Scofield, No. 628.
 convexa n. sp., Ulrich and Scofield, No. 628.
 inflata Meek and Worthen, Ulrich and Scofield, No. 628.
 intermedia n. sp., Ulrich and Scofield, No. 628.
 nobilis n. sp., Ulrich and Scofield, No. 628.
 planulata n. sp., Ulrich and Scofield, No. 628.
 schucherti, n. sp., Ulrich and Scofield, No. 628.
 subbrevis n. sp., Ulrich and Scofield, No. 628.
 subfusiformis Hall, Ulrich and Scofield No. 628.
 sulcata n. sp., Ulrich and Scofield, No. 628.
 " *Fusus* " *marnochi*, Aldrich, No. 18.
Fusus subflosus n. sp., Aldrich, No. 18.
Gerasus tubifer n. sp., Matthew, No. 418.
Gerasaphes n. subgen., Clarke, No. 133.
 ulrichiana n. sp., Clarke, No. 133.
Glyphoceras incisum Hyatt, Smith, No. 506.
Glyptocrinus Hall, James, No. 312.
decadactylus Hall, James, No. 312.
 dyeri Meek, James, No. 312.
 forshelli S. A. Miller, James, No. 312.
 miamiensis S. A. Miller, James, No. 312.
 sculptus S. A. Miller, James, No. 312.
 shafferi S. A. Miller, James, No. 312.
 subglobosus Meek, James, No. 312.
Gmelin, Woolman, No. 741.
Goniacodon Cope, Matthew, No. 418.
 levisanus (Cope), Matthew, No. 418.
Gonioceras Hall, 1847, Clarke, No. 124.
 anceps Hall, 1847, Clarke, No. 124.
 occidentale Hall, 1861, Clarke, No. 124.
Gyronema n. gen. or subgen., Ulrich and Scofield, No. 628.
 duplicatum n. sp., Ulrich and Scofield, No. 628.
 liratum n. sp., Ulrich and Scofield, No. 628.
 pulchellum n. sp., Ulrich and Scofield, No. 628.

Paleontology—Continued.

Genera and species described—Continued.

Gyronema—Continued.

- semicarinatum* Salter, Ulrich and Scofield, No. 628.
Halichondrites confusus Dawson, Dawson, No. 175.
Halliella Ulrich, Ulrich, No. 627.
labiosa n. sp., Ulrich, No. 627.
Halysites catenularia L., var. *gracilis*, Whiteaves, No. 687.
Harpes cassinensis n. sp., Whitfield, No. 691.
Harpina
minnesotensis n. sp., Clarke, No. 133.
cf. ottawensis Billings (sp.), Clarke, No. 133.
rutrellum n. sp., Clarke, No. 133.
Helcionopsis n. gen., Ulrich and Scofield, No. 628.
subcarinata n. sp., Ulrich and Scofield, No. 628.
striata n. sp., Ulrich and Scofield, No. 628.
Helicotoma Salter, Ulrich and Scofield, No. 628.
declivis Safford, Ulrich and Scofield, No. 628.
graciosa n. sp., Ulrich and Scofield, No. 628.
marginata n. sp., Ulrich and Scofield, No. 628.
planulata Salter, Ulrich and Scofield, No. 628.
var. robusta n. var., Ulrich and Scofield, No. 628.
planulatoides n. sp., Ulrich and Scofield, No. 628.
subquadrata n. sp., Ulrich and Scofield, No. 628.
tennesseensis Safford, Ulrich and Scofield, No. 628.
umbilicata n. sp., Ulrich and Scofield, No. 628.
verticalis n. sp., Ulrich and Scofield, No. 628.
Hemiganus otaridens Cope, Wortman, No. 742.
Hesperornis, Marsh, No. 408.
Heteracanthus uddeni n. sp., Lindahl, No. 381.
Hipponyx tortilis n. sp., Guppy and Dall, No. 255.
Holopea Hall, Ulrich and Scofield, No. 628.
ampia n. sp., Ulrich and Scofield, No. 628.
appressa n. sp., Ulrich and Scofield, No. 628.
concinna n. sp., Ulrich and Scofield, No. 628.
excolea n. sp., Ulrich and Scofield, No. 628.
insignis n. sp., Ulrich and Scofield, No. 628.
paludiformis, Ulrich and Scofield, No. 628.
parvula n. sp., Ulrich and Scofield, No. 628.
pyrene Billings, Ulrich and Scofield, No. 628.
rotunda n. sp., Ulrich and Scofield, No. 628.
similis n. sp., Ulrich and Scofield, No. 628.
supraplana n. sp., Ulrich and Scofield, No. 628.

Paleontology—Continued

Genera and species described—Continued.

- Holoptychius serrulatus* n. sp., Cope, No. 149.
latus n. sp., Cope, No. 149.
flabellatus n. sp., Cope, No. 149.
Hormotoma Salter, Ulrich and Scofield, No. 628.
bellicincta Hall, Ulrich and Scofield, No. 628.
gracilis Hall, Ulrich and Scofield, No. 628.
var. angustata Hall, Ulrich and Scofield, No. 628.
(?) var. goodhuensis n. var., Ulrich and Scofield, No. 628.
var. multivolvina n. var., Ulrich and Scofield, No. 628.
var. subblaxa n. var., Ulrich and Scofield, No. 628.
(?) major Hall, Ulrich and Scofield, No. 628.
salteri n. sp., Ulrich and Scofield, No. 628.
subangulata n. sp., Ulrich and Scofield, No. 628.
trentonensis n. sp., Ulrich and Scofield, No. 628.
winnipegensis n. sp., Whiteaves, No. 687.
Hyalostelia metassica Dawson, Dawson, No. 175.
Hypnum recurvans, Penhallow, No. 468.
Illænus
americanus Billings 1859, Clarke, No. 133.
cf. indeterminatus Walcott, Clarke, No. 133.
Inocaulis canadensis n. sp., Whiteaves, No. 687.
Iphidea Billings, Walcott, No. 657.
alabamaensis n. sp., Walcott, No. 657.
crenistris n. sp., Walcott, No. 657.
logani n. sp., Walcott, No. 657.
pealei n. sp., Walcott, No. 657.
superba n. sp., Walcott, No. 657.
Isodectes punctulatus Cope, Cope, No. 149.
Isotelus
canalis Whitfield sp., Clarke, No. 133.
maximus Locke, 1838, Clarke, No. 133.
gigas De Kay, 1824, Clarke, No. 133.
susæ Whitfield, 1882, Clarke, No. 133.
Jonesella Ulrich, Ulrich, No. 627.
obscura n. sp., Ulrich, No. 627.
Juglans hesperia n. sp., Knowlton, No. 345.
Kellia prima n. sp., Aldrich, No. 18.
Kokenia n. gen., Ulrich and Scofield, No. 628.
costalis n. sp., Ulrich and Scofield, No. 628.
Krausella n. gen., Ulrich, No. 627.
arcuata n. sp., Ulrich, No. 627.
inæqualis n. sp., Ulrich, No. 627.
Lambdotherium Cope, Osborn, No. 461.
popoagium Cope, Osborn, Nos. 458, 461.
Larix americana, Penhallow, No. 471.
Lasiothrix Hinde, Dawson, No. 175.
curvicostrata Hinde, Dawson, No. 175.
flabellata n. sp., Dawson, No. 175.
Leaia leidyi, Dawson, No. 174.
Leda marieana n. sp., Aldrich, No. 18.
Leperditella n. gen., Ulrich, No. 627.
canalis n. sp., Ulrich, No. 627.
(?) dorsicornis Ulrich, Ulrich, No. 627.

Paleontology—Continued.

Genera and species described—Continued.

Leperditella—Continued.

germana Ulrich, Ulrich, No. 627.

macra n. sp., Ulrich, No. 627.

persimilis n. sp., Ulrich, No. 627.

Leperditia Ronault, Ulrich, No. 627.

fabulites Conrad, Ulrich, No. 627.

okeni, Dawson, No. 174.

Lepton (?) alabamensis n. sp., Aldrich, No. 18.

Levigulus pagoda, Aldrich, No. 18.

Lichas (Terataopsis) grandis Hall, Whitfield, No. 690.

Limopsis subangularis n. sp., Guppy and Dall, No. 255.

Lingula

elongata Hall, Whiteaves, No. 687.

lowensis Owen, Whiteaves, No. 687.

obtusca Hall, Whiteaves, No. 687.

Lingulepis meeki n. sp., Walcott, No. 656.

Linuparus atavus n. sp., Ortmann, No. 457.

Liospira n. gen., Ulrich and Scofield, No. 628.

abrupta n. sp., Ulrich and Scofield, No. 628.

americana Billings, Ulrich and Scofield, No. 628.

angulata n. sp., Ulrich and Scofield, No. 628.

angustata n. sp., Ulrich and Scofield, No. 628.

decipiens n. sp., Ulrich and Scofield, No. 628.

micula Hall, Ulrich and Scofield, No. 628.

(?) mundula n. sp., Ulrich and Scofield, No. 628.

obtusca n. sp., Ulrich and Scofield, No. 628.

persimilis n. sp., Ulrich and Scofield, No. 628.

progne Billings, Ulrich and Scofield, No. 628.

rugata n. sp., Ulrich and Scofield, No. 628.

subconcava n. sp., Ulrich and Scofield, No. 628.

vitruvia Billings, Ulrich and Scofield, No. 628.

Liotia veresimilis n. sp., Guppy and Dall, No. 255.

Littorina subobesa n. sp., Cooper, No. 148.

Lophospira Whitfield, Ulrich and Scofield, No. 628.

abnormis n. sp., Ulrich and Scofield, No. 628.

acuminata n. sp., Ulrich and Scofield, No. 628.

ampia n. sp., Ulrich and Scofield, No. 628.

augustina Billings, Ulrich and Scofield, No. 628.

var. minnesotensis n. var., Ulrich and Scofield, No. 628.

bicincta Hall, Ulrich and Scofield, No. 628.

bowdeni Safford, Ulrich and Scofield, No. 628.

centralis n. sp., Ulrich and Scofield, No. 628.

concinna n. sp., Ulrich and Scofield, No. 628.

conoidea n. sp., Ulrich and Scofield, No. 628.

Paleontology—Continued.

Genera and species described—Continued.

Lophospira—Continued.

conradana n. sp., Ulrich and Scofield, No. 628.

decurva n. sp., Ulrich and Scofield, No. 628.

elevata n. sp., Ulrich and Scofield, No. 628.

illmorensis n. sp., Ulrich and Scofield, No. 628.

helicteres var. wisconsinensis n. var., Ulrich and Scofield, No. 628.

humilis n. sp., Ulrich and Scofield, No. 628.

medialis n. sp., Ulrich and Scofield, No. 628.

var. burginensis n. var., Ulrich and Scofield, No. 628.

multigruma Miller, Ulrich and Scofield, No. 628.

obliqua n. sp., Ulrich and Scofield, No. 628.

oweni n. sp., Ulrich and Scofield, No. 628.

peracuta n. sp., Ulrich and Scofield, No. 628.

perangulata Hall, Ulrich and Scofield, No. 628.

perforata n. sp., Ulrich and Scofield, No. 628.

perlamellosa n. sp., Ulrich and Scofield, No. 628.

procera n. sp., Ulrich and Scofield, No. 628.

producta n. sp., Ulrich and Scofield, No. 628.

pulchella n. sp., Ulrich and Scofield, No. 628.

quadrisculcata n. sp., Ulrich and Scofield, No. 628.

saffordi n. sp., Ulrich and Scofield, No. 628.

serrulata Salter, Ulrich and Scofield, No. 628.

spironema n. sp., Ulrich and Scofield, No. 628.

summerensis Safford, Ulrich and Scofield, No. 628.

tenulistriata n. sp., Ulrich and Scofield, No. 628.

(?) Seelya (?) knoxvillensis n. sp., Ulrich and Scofield, No. 628.

lirata n. sp., Ulrich and Scofield, No. 628.

(?) notabilis n. sp., Ulrich and Scofield, No. 628.

(?) trochoneinoides n. sp., Ulrich and Scofield, No. 628.

Loxonema winnipegense Whiteaves, Whiteaves, No. 687.

Lucina

astartiformis n. sp., Aldrich, No. 18.

pauperata n. sp., Guppy and Dall, No. 255.

textilis n. sp., Guppy and Dall, No. 255.

Lyrodesma Conrad, Ulrich, No. 628.

acuminatum n. sp., Ulrich, No. 628.

cannonense n. sp., Ulrich, No. 628.

Machærodus, Smith, No. 9.

Maclurea (Leusour) Woodward, Ulrich and Scofield, No. 628.

affinis Bill., Whitfield, No. 691.

Paleontology—Continued.

Genera and species described—Continued.

Maclurea—Continued.

- bigbyi Hall, Ulrich and Scofield, No. 628.
 var. dixonensis n. var., Ulrich and Scofield, No. 628.
 crassa n. sp., Ulrich and Scofield, No. 628.
 var. macra n. var., Ulrich and Scofield, No. 628.
 depressa n. sp., Ulrich and Scofield, No. 628.
 knoxvillensis n. sp., Ulrich and Scofield, No. 628.
 nitida n. sp., Ulrich and Scofield, No. 628.
Macluria (Maclurina) manitobensis Whiteaves, Whiteaves, No. 687.
Maclurina n. gen., Ulrich and Scofield, No. 628.
 cuneata Whitfield, Ulrich and Scofield, No. 628.
 manitobensis Whiteaves, Ulrich and Scofield, No. 628.
 subrotunda Whitfield, Ulrich and Scofield, No. 628.
Macronotella n. gen., Ulrich, No. 627.
 scofieldi n. sp., Ulrich, No. 627.
Macropetalichthys, Eastman, No. 190.
 Major Ulrich, Ulrich, No. 626.
Mangilia consentanea n. sp., Guppy and Dall, No. 255.
Marginella
 amina n. sp., Guppy and Dall, No. 255.
 domingoensis n. sp., Guppy and Dall, No. 255.
 latissima n. sp., Guppy and Dall, No. 255.
 limonensis n. sp., Guppy and Dall, No. 255.
 (Persicula) arcuata n. sp., Guppy and Dall, No. 255.
 solitaria n. sp., Guppy and Dall, No. 255.
Mariacrinus Hall, James, No. 312.
 harrii S. A. Miller, James, No. 312.
Matheria Billings, Ulrich, No. 626.
 rugosa Ulrich, Ulrich, No. 626.
Mathilda
 plexita n. sp., Guppy and Dall, No. 255.
 regularis Meyer, Aldrich, No. 18.
Meekospira n. gen., Ulrich and Scofield, No. 628.
 subconica n. sp., Ulrich and Scofield, No. 628.
Megalomphala n. gen., Ulrich and Scofield, No. 628.
Mesotrypa selkirkensis n. sp., Whiteaves, No. 687.
Minoceras Hall, Ulrich and Scofield, No. 628.
Mioclenus Cope, Matthew, No. 418.
 acolytus (Cope), Matthew, No. 418.
 inaequidens (Cope), Matthew, No. 418.
 lemurondus n. sp., Matthew, No. 418.
 turgidunculus Cope, Matthew, No. 418.
 turgidus Cope, Matthew, No. 418.
Mixodectes Cope, Matthew, No. 418.
Modiolodon n. gen., Ulrich, No. 626.
 (?) gibbus n. sp., Ulrich, No. 626.
 patulus n. sp., Ulrich, No. 626.
Modiolopeldæ n. fam., Ulrich, No. 626.
Modiolopsis Hall, Ulrich, No. 626.
 angustifrons n. sp., Whiteaves, No. 687.
 arguta n. sp., Ulrich, No. 626.

Paleontology—Continued.

Genera and species described—Continued.

Modiolopsis—Continued.

- chatfieldensis n. sp., Ulrich, No. 626.
 concava Ulrich, Ulrich, No. 626.
 concentrica Hall and Whitfield, Ulrich, No. 626.
 (?) consimilis n. sp., Ulrich, No. 626.
 excellens n. sp., Ulrich, No. 626.
 mytiloides Hall, Ulrich, No. 626.
 nan. n. sp., Ulrich, No. 626.
 obsoleta n. sp., Ulrich, No. 626.
 oweni n. sp., Ulrich, No. 626.
 parviuscula Billings, Whiteaves, No. 687.
 similia Ulrich, Ulrich, No. 626.
Mogulia Waagen, Ulrich and Scofield, No. 628.
Moorea Jones and Kirkby, Ulrich, No. 627.
 angularis n. sp., Ulrich, No. 627.
 (?) perplexa n. sp., Ulrich, No. 627.
 punctata n. sp., Ulrich, No. 627.
Murchisonia cassina n. sp., Whitfield, No. 691.
Myelopteris topekensis n. sp., Penhallow, No. 469.
Myrica
 (?) idahoensis n. sp., Knowlton, No. 345.
 lanceolata n. sp., Knowlton, No. 345.
Nanno aulema n. sp., Clarke, No. 134.
Nassa newcombei n. sp., Merriam, No. 425.
Nautilus perkinsi n. sp., Whitfield, No. 691.
Nileus striatus n. sp., Whitfield, No. 691.
 vigilans, Meek and Worthen (sp.), 1875, Clarke, No. 133.
Nimravus Cope, Smith, No. 9.
Obolella (Linnarsson) pretiosa Billings, Dawson, No. 175.
Odontopleura parvula Wolcott (sp.), 1877, Clarke, No. 133.
Odontostomia insignifica n. sp., Aldrich, No. 18.
Oliva plicata n. sp., Guppy and Dall, No. 255.
Olivella indivisa n. sp., Guppy and Dall, No. 255.
Omospira n. gen., Ulrich and Scofield, No. 628.
 alexandra Billings, Ulrich and Scofield, No. 628.
 laticinnota n. sp., Ulrich and Scofield, No. 628.
Oncocera
 carveri n. sp., Clarke, No. 134.
 douglassi n. sp., Clarke, No. 134.
 exiguum Billings, 1860, Clarke, No. 134.
 lycus Hall, 1861, Clarke, No. 134.
 magnum Whiteaves, Whiteaves, No. 687.
 (magnum? var.) intermedium, Whiteaves, No. 687.
 minnesotense n. sp., Clarke, No. 134.
 pandion Hall, 1861, Clarke, No. 134.
 whiteavei Miller, Whiteaves, No. 687.
Onychodectes Cope, Wortman, No. 742.
Ophileta n. gen., Ulrich and Scofield, No. 628.
 angularis n. sp., Ulrich and Scofield, No. 628.
 sublara n. sp., Ulrich and Scofield, No. 628.
Opis triangulata Cooper (Stanton), Cooper, No. 148.
Oreodon culbertsoni Leidy, Stewart, No. 582.
Ornithostoma ingens, Williston, No. 705.

Paleontology—Continued.

Genera and species described—Continued.

Ornithotarsus immanis Cope, Woolman, No. 741.

Orthia

corpulenta Sarseson, Sarseson, No. 525.
emacerata Hall, Sarseson, No. 525.
fulvis n. sp., Sarseson, No. 525.
ignota n. sp., Sarseson, No. 525.
meeki S. A. Miller, Sarseson, No. 525.
multisepta Meek, Sarseson, No. 525.
porrecta n. sp., Sarseson, No. 525.
rogata Sarseson, Sarseson, No. 525.
teraa Sarseson, Sarseson, No. 525.
testudinaria Sarseson, No. 525.

Orthoceras

cf. *amplimeratum* Hall, 1847, Clarke, No. 134.
anellus Conrad, 1843, Clarke, No. 134.
beltrami n. sp., Clarke, No. 134.
bilineatum Hall, 1847, Clarke, No. 134.
juncum Hall, 1847, Clarke, No. 134.
lescuri n. sp., Clarke, No. 134.
multimeratum Emmons, 1842, Clarke, No. 134.
nicolleti n. sp., Clarke, No. 134.
perroti n. sp., Clarke, No. 134.
olorus Hall, 1877, Clarke, No. 134.
selkirkenais Whiteaves, Whiteaves, No. 687.
socialis Hall, 1877, Clarke, No. 134.
tenuistriatum Hall, 1847, Clarke, No. 134.
winnipegense Whiteaves, Whiteaves, No. 687.

Orthoceras Hall and Whitfield, Ulrich, No. 626.

affine n. sp., Whiteaves, No. 687.
canaliculatum, Ulrich, No. 626.
minnesotense Ulrich, Ulrich, No. 626.
schucherti n. sp., Ulrich, No. 626.
subnasutum Meek and Worthen, Ulrich, No. 626.

Oscilla indiscreta n. sp., Guppy and Dall, No. 255.

Owenella n. gen., Ulrich and Scofield, No. 628.
antiquata Whitfield sp., Ulrich and Scofield, No. 628.

Oxyaena huerfanensis n. sp., Osborn, No. 458.

Oxycylenus (Cope) Scott, Matthew, No. 418.

cuspidatus Cope, Matthew, No. 418.

simplex (Cope), Matthew, No. 418.

Oxydiscus Koken, Ulrich and Scofield, No. 628.
cristatus Safford, Ulrich and Scofield, No. 628.

subacutus n. sp., Ulrich and Scofield, No. 628.

Palaeasma Hall and Whitfield, Ulrich and Scofield, No. 628.

humilis n. sp., Ulrich and Scofield, No. 628.

Palaeaster wyckoffi n. sp., Miller and Gurley, No. 431.

Palaeophycus Hall, Duden, No. 186.

new-albanense n. sp., Duden, No. 186.

lineare n. sp., Duden, No. 186.

Palaeopteria n. gen., Whiteaves, No. 687.

parvula n. sp., Whiteaves, No. 687.

Palaeosaccus Hinde, Dawson, No. 175.

dawsoni Hinde, Dawson, No. 175.

Paleontology—Continued.

Genera and species described—Continued.

Palaeoscyops borealis Cope, Matthew, No. 419.

Parenchymophycus n. gen., Duden, No. 186.

asphalticum n. sp., Duden, No. 186.

Pasceolus gregarius? Billings, Whiteaves, No. 687.

Patella geometrica n. sp., Merriam, No. 425.

Patellostium Waagen, Ulrich and Scofield, No. 628.

Paterula amii n. sp., Schuchert, No. 539.

Patriofelis ulta Leidy, Osborn, No. 458.

Periptychus

carinidens Cope, Matthew, No. 418.

coarctatus Cope, Matthew, No. 418.

rhabdodon (Cope), Matthew, No. 418.

Phasianella sp. f., Guppy and Dall, No. 255.

Phenacodus primævus Cope, Osborn, No. 458.

Philine alabamensis n. sp., Aldrich, No. 18.

Pholadomya (Triplicosta) *progressiva* n. sp., Cooper, No. 148.

Pholidops greeni n. sp., Miller and Gurley, No. 431.

Phos

fasciolatus n. sp., Guppy and Dall, No. 255.

gabbii n. sp., Guppy and Dall, No. 255.

metuloides n. sp., Guppy and Dall, No. 255.

(*Strongylocera*) *chipolanus* n. sp., Guppy and Dall, No. 255.

Phragmites aquehogensis n. sp., Hollick, No. 299.

Phyllites flexuosus n. sp., Knowlton, No. 345.

obacurus n. sp., Knowlton, No. 345.

Picea nigra, Penhallow, No. 471.

Piloceras newton-winchelli n. sp., Clarke, No. 134.

Pinus sp., Knowlton, No. 345.

Platycarpus, Williston, No. 710.

Platyceus

(f) *depressum* n. sp., Ulrich and Scofield, No. 626.

indianense n. sp., Miller and Gurley, No. 431.

wisconsinensis n. sp., Ulrich and Scofield, No. 628.

Platyserinus

bozemanensis n. sp., Miller and Gurley, No. 431.

bridgerensis n. sp., Miller and Gurley, No. 431.

sharonensis n. sp., Miller and Gurley, No. 431.

Platymetopus

bicornis Ulrich (sp.), 1892, Clarke, No. 133.

cucullus Meek and Worthen (sp.), 1895, Clarke, No. 133.

robbinsi Ulrich (sp.), 1892, Clarke, No. 133.

Plesiosaurus gouldi n. sp., Williston, No. 707.

Plethocardia Ulrich, Ulrich, No. 628.

suberecta Ulrich, Ulrich, No. 628.

umbonata Ulrich, Ulrich, No. 628.

Plethospira n. gen., Ulrich and Scofield, No. 628.

semele Hall, Ulrich and Scofield, No. 628.

striata n. sp., Ulrich and Scofield, No. 628.

Paleontology—Continued.

Genera and species described—Continued.

- Pleurotoma**
pulcherrima, Aldrich, No. 18.
venusta, Aldrich, No. 18.
- Pleurotomaria**
(f) margaritoides n. sp., Whiteaves, No. 687.
muralis D. D. Owen, Whiteaves, No. 687.
stokesiana n. sp., Whiteaves, No. 687.
- Populus**
eotremuloides n. sp., Knowlton, No. 345.
lindgreni n. sp., Knowlton, No. 345.
occidentalis n. sp., Knowlton, No. 345.
- Potamogeton**
pectinatus, Penhallow, No. 471.
pusillus, Penhallow, No. 471.
- Poterioceras**
apertum Whiteaves 1889, Clarke, No. 134.
gracile Whiteaves, Whiteaves, No. 687.
nobile Whiteaves, Whiteaves, No. 687.
- Primitia** Jones and Holl, Ulrich, No. 627.
celesta n. sp., Ulrich, No. 627.
duplicata n. sp., Ulrich, No. 627.
gibbera n. sp., Ulrich, No. 627.
mammata n. sp., Ulrich, No. 627.
micula n. sp., Ulrich, No. 627.
minutissima n. sp., Ulrich, No. 627.
saneti pauli n. sp., Ulrich, No. 627.
tumidula n. sp., Ulrich, No. 627.
uphami n. sp., Ulrich, No. 627.
- Primitiella** n. gen., Ulrich, No. 627.
constricta n. sp., Ulrich, No. 627.
illmorensis n. sp., Ulrich, No. 627.
limbata n. sp., Ulrich, No. 627.
simulans n. sp., Ulrich, No. 627.
unicornis Ulrich, Ulrich, No. 627.
- Protus**
parviusculus Hall 1866, Clarke, No. 133.
placidus n. sp., Vogdes, No. 653.
- Prolobella** n. gen., Ulrich, No. 626.
striatula n. sp., Ulrich, No. 626.
- Protarea** (vetusta? var.) magna, Whiteaves, No. 687.
- Protocaris** Walcott, Schuchert, No. 540.
- Protoceras**
celer Marsh, Marsh, Nos. 407, 410.
comptus Marsh, Marsh, No. 410.
- Protochriacus** Scott, Matthew, No. 418.
attenuatus Osborn and Earle, Matthew, No. 418.
hyattianus (Cope), Matthew, No. 418.
priscus (Cope), Matthew, No. 418.
- Protogonodon** Scott, Matthew, No. 418.
stenognathus n. sp., Matthew, No. 418.
- Protorthis**
cassinensis n. sp., Whitfield, No. 691.
minima n. sp., Whitfield, No. 691.
- Protoelene** n. gen., Matthew, No. 418.
- Protopongia**
coronata Dawson, Dawson, No. 175.
cyathiformis Dawson, Dawson, No. 175.
delicatula Dawson, Dawson, No. 175.
mononema Dawson, Dawson, No. 175.
polynema Dawson, Dawson, No. 175.
tetrenema Dawson, Dawson, No. 175.
- Protostega**, Case, No. 109.

Paleontology—Continued.

Genera and species described—Continued.

- Protowarthia** n. gen., Ulrich and Scofield, No. 628.
cancellata Hall, Ulrich and Scofield, No. 628.
concinna n. sp., Ulrich and Scofield, No. 628.
granistriata n. sp., Ulrich and Scofield, No. 628.
obesa n. sp., Ulrich and Scofield, No. 628.
pervoluta n. sp., Ulrich and Scofield, No. 628.
planodorsata n. sp., Ulrich and Scofield, No. 628.
rectangularis n. sp., Ulrich and Scofield, No. 628.
subcompressa n. sp., Ulrich and Scofield, No. 628.
- Pseudosphærexochus** trentonensis n. sp., Clarke, No. 133.
- Psiliconcha** n. gen., Ulrich, No. 626.
minnesotensis n. sp., Ulrich, No. 626.
- Psittacotherium** Cope, Wortman, No. 742.
- Pterygomotopus**
callicephalus Hall (sp.), Clarke, No. 133.
eboraceus n. sp., Clarke, No. 133.
intermedius Walcott (sp.) 1877, Clarke, No. 133.
schmidti n. sp., Clarke, No. 133.
- Ptychocrinus** Wachsmuth and Springer, James, No. 312.
angularis Miller and Dyer, James, No. 312.
parvus Hall, James, No. 312.
- Ptychopyge** ulrichi n. sp., Clarke, No. 132.
- Pyramidella**
(Longchæus) jamaicensis n. sp., Guppy and Dall, No. 255.
forulata n. sp., Guppy and Dall, No. 255.
- Pyrazisinus?** haitiensis, n. sp., Guppy and Dall, No. 255.
- Quercus**
consimilis Newby., Knowlton, No. 345.
idahoensis n. sp., Knowlton, No. 345.
payettensis n. sp., Knowlton, No. 345.
simulata n. sp., Knowlton, No. 345.
- Radiolites**
adherens n. sp., Whitfield, No. 692.
annulosus n. sp., Whitfield, No. 692.
cancellatus n. sp., Whitfield, No. 692.
macroplicatus n. sp., Whitfield, No. 692.
rudis n. sp., Whitfield, No. 692.
(Lapeirousia) nicholasi n. sp., Whitfield, No. 692.
- Rafinesquina** lata Whiteaves, Whiteaves, No. 687.
- Raphistoma** Hall, Ulrich and Scofield, No. 628.
peracutum n. sp., Ulrich and Scofield, No. 628.
richmondensis n. sp., Ulrich and Scofield, No. 628.
- Raphistomida** n. fam., Ulrich and Scofield, No. 628.
- Raphistomina** n. gen., Ulrich and Scofield, No. 628.
denticulata n. sp., Ulrich and Scofield, No. 628.
lapicida Salter, Ulrich and Scofield, No. 628.
modesta n. sp., Ulrich and Scofield, No. 628.
rugata n. sp., Ulrich and Scofield, No. 628.

Paleontology—Continued.

Genera and species described—Continued.

- Remeloceras* *clarkense* n. sp., Miller and Gurley, No. 431.
- Remondia* Gabb, Stanton, No. 579.
furcata Gabb, Stanton, No. 579.
robbinsi (White), Stanton, No. 579.
- Reteocrinus* Billings 1859, James, No. 312.
cognatus S. A. Miller, James, No. 312.
gracilis Wetherby, James, No. 312.
magnificus S. A. Miller, James, No. 312.
o'nealli Hall, James, No. 312.
- Rhinidictya* n. sp., Whiteaves, No. 687.
- Rhinopora* *prima* n. sp., Whitfield, No. 691.
- Rhodocrinus*
bqsemanensis n. sp., Miller and Gurley, No. 431.
bridgerensis n. sp., Miller and Gurley, No. 431.
douglasi n. sp., Miller and Gurley, No. 431.
- Rhus* *payettensis* n. sp., Knowlton, No. 345.
- Rhynchonella* *anticoostensis* var., Whiteaves, No. 687.
- Rhytimya* Ulrich, Ulrich, No. 626.
recta n. sp., Whiteaves, No. 687.
sinuata n. sp., Ulrich, No. 626.
- Ringicula*
alabamensis n. sp., Aldrich, No. 18.
biplicata, Aldrich, No. 18.
butleriana, Aldrich, No. 18.
butleriana var. *lignitifera* n. var., Aldrich, No. 18.
clabornensis n. sp., Aldrich, No. 18.
dalli, Aldrich, No. 18.
liebonensis, n. sp., Aldrich, No. 18.
mississippiensis, Aldrich, No. 18.
trapaquara, Aldrich, No. 18.
- Rissoa* (Alvania) *pariana* n. sp., Guppy and Dall, No. 255.
- Rusophycus*
chesterense n. sp., Miller and Gurley, No. 431.
montanense n. sp., Miller and Gurley, No. 431.
- Saffordia* n. gen., Ulrich, No. 626.
modesta Ulrich, Ulrich, No. 626.
sulcodorsata Ulrich, Ulrich, No. 626.
ventralis n. sp., Ulrich, No. 626.
- Sagenodus*
brownii n. sp., Cope, No. 149.
conchilepis n. sp., Cope, No. 149.
foliatus n. sp., Cope, No. 149.
gurleianus n. sp., Cope, No. 149.
lacovianus n. sp., Cope, No. 149.
magister n. sp., Cope, No. 149.
occidentalis Newb., Cope, No. 149.
quincuncialis n. sp., Cope, No. 149.
reticulatus Newberry, Cope, No. 149.
- Salix* *angusta* A. L. Br., Knowlton, No. 345.
- Salpingostoma* *Roemer*, Ulrich and Scofield, No. 628.
buelli Whitfield, Ulrich and Scofield, No. 628.
imbricata n. sp., Ulrich and Scofield, No. 628.
richmondensis n. sp., Ulrich and Scofield, No. 628.
sculptilis n. sp., Ulrich and Scofield, No. 628.

Paleontology—Continued.

Genera and species described—Continued.

- Sanguinolaria* *unioides* n. sp., Guppy and Dall, No. 255.
- Sarcothraustes* Cope, Matthew, No. 418.
antiquus Cope, Matthew, No. 418.
- Sauropleura* *latithorax* n. sp., Cope, No. 149.
- Scala*
exquisita n. sp., Aldrich, No. 18.
octolineata Con., Aldrich, No. 18.
unilineata, Aldrich, No. 18.
- Scaphander* *ligniticus* n. sp., Aldrich, No. 18.
- Scenella* Billings, Ulrich and Scofield, No. 628.
affinis n. sp., Ulrich and Scofield, No. 628.
beloitensis n. sp., Ulrich and Scofield, No. 628.
compressa n. sp., Ulrich and Scofield, No. 628.
magnifica n. sp., Ulrich and Scofield, No. 628.
obtusa *Sardeson*, Ulrich and Scofield, No. 628.
radialis n. sp., Ulrich and Scofield, No. 628.
superba Billings, Ulrich and Scofield, No. 628.
- Schizolopha* Ulrich, Ulrich and Scofield, No. 628.
moorei n. sp., Ulrich and Scofield, No. 628.
textilis n. sp., Ulrich and Scofield, No. 628.
- Schmidtella* Ulrich, Ulrich, No. 627.
affinis n. sp., Ulrich, No. 627.
brevis n. sp., Ulrich, No. 627.
crassimarginata Ulrich, Ulrich, No. 627.
incompta n. sp., Ulrich, No. 627.
subrotunda n. sp., Ulrich, No. 627.
umbonata n. sp., Ulrich, No. 627.
- Scintilla* *clarkiana* n. sp., Aldrich, No. 18.
- Seelya* n. gen., Ulrich and Scofield, No. 628.
mundula n. sp., Ulrich and Scofield, No. 628.
- Sequoia* *angustifolia* Lx., Knowlton, No. 345.
- Serpulites* *dissolutus* Billings, Whiteaves, No. 687.
- Sigaretus* *costatus* n. sp., Cooper, No. 148.
- Sistrum* (*Ricinula*?) *cretaceum* n. sp., Cooper, No. 148.
- Smilodon* (syn. *Dinobastis* Cope), Adams, No. 9.
- Solariella* *altiuscula* n. sp., Guppy and Dall, No. 255.
- Solariorbis*
clypeatus n. sp., Guppy and Dall, No. 255.
subangulatus Meyer var., Aldrich, No. 18.
- Solarium* sp. f., Guppy and Dall, No. 255.
- Solenospira* n. gen., Ulrich and Scofield, No. 628.
pagoda Salter, Ulrich and Scofield, No. 628.
pagoda Salter var. *occidentalis*, Whiteaves, No. 687.
prisca Billings, Ulrich and Scofield, No. 628.
- Sphenolium* S. A. Miller, Ulrich, No. 628.
parallelum n. sp., Ulrich, No. 626.
striatum n. sp., Ulrich, No. 626.
- Sporangites* *radiatus* n. sp., Duden, No. 188.
- Sportella* *gregorioi* Coes., Aldrich, No. 18.

Paleontology—Continued.

Genera and species described—Continued.

- Squama* n. gen., Logan, No. 389.
lata n. sp., Logan, No. 389.
spissa n. sp., Logan, No. 389.
Stachella Waagen, Ulrich and Scofield, No. 628.
Steganoecrinus
albersi n. sp., Miller and Gurley, No. 431.
blairi n. sp., Miller and Gurley, No. 431.
griffithi n. sp., Miller and Gurley, No. 431.
sharonensis n. sp., Miller and Gurley, No. 431.
Stenotheca Salter, Ulrich and Scofield, No. 628.
exerta Sardeson, Ulrich and Scofield, No. 628.
unguiformis n. sp., Ulrich and Scofield, No. 628.
Stephanella hindii n. sp., Dawson, No. 175.
Stereocrinus indianensis n. sp., Miller and Gurley, No. 431.
Stomatopora canadensis n. sp., Whiteaves, No. 687.
Stramentum n. gen., Logan, No. 389.
haworthi n. sp., Logan, No. 389.
tabulatum n. sp., Logan, No. 389.
Streptelasma
corniculum Hall, Sardeson, No. 528.
profundum (Owen), Sardeson, No. 528.
robustum Whiteaves, Whiteaves, No. 687.
Strombina mira n. sp., Guppy and Dall, No. 255.
Strombinella Dall, Guppy and Dall, No. 255.
acufornis n. sp., Guppy and Dall, No. 255.
Strophostylus Hall, Ulrich and Scofield, No. 628.
textilis n. sp., Ulrich and Scofield, No. 628.
Stylinodon
cylindrifera Cope, Wortman, No. 742.
mirus Marsh, Wortman, No. 742.
mirus, Marsh, No. 409.
Subulites Conrad, Ulrich and Scofield, No. 628.
beloitensis n. sp., Ulrich and Scofield, No. 628.
canadensis n. sp., Ulrich and Scofield, No. 628.
conradi, n. sp., Ulrich and Scofield, No. 628.
dixonensis n. sp., Ulrich and Scofield, No. 628.
nanus n. sp., Ulrich and Scofield, No. 628.
parvus n. sp., Ulrich and Scofield, No. 628.
pergracilis n. sp., Ulrich and Scofield, No. 628.
regularis n. sp., Ulrich and Scofield, No. 628.
sp. undet., Ulrich and Scofield, No. 628.
Surcula gabbi, Aldrich, No. 18.
Talarocrinus patel n. sp., Miller and Gurley, No. 431.
Tamiobatis vetustis, n. gen. et sp., Eastman, No. 189.
Technophorus Miller, Ulrich, No. 628.
divaricatus Ulrich, Ulrich, No. 628.
extenuatus Ulrich, Ulrich, No. 628.

Paleontology—Continued.

Genera and species described—Continued.

- Technophorus—Continued.*
alisticriatus Ulrich, Ulrich, No. 628.
subacutus Ulrich, Ulrich, No. 628.
Temnochilus greenense n. sp., Miller and Gurley, No. 431.
"Terebra" plicifera, Aldrich, No. 18.
Teredina sp., Guppy and Dall, No. 255.
Tetradella Ulrich, Ulrich, No. 627.
lunatifera Ulrich, Ulrich, No. 627.
quadrilirata Hall and Whitfield, Ulrich, No. 627.
Tetranota n. gen., Ulrich and Scofield, No. 628.
bidorsata Hall, Ulrich and Scofield, No. 628.
var. minor n. var., Ulrich and Scofield, No. 628.
macra n. sp., Ulrich and Scofield, No. 628.
obsoleta n. sp., Ulrich and Scofield, No. 628.
sexicarinata n. sp., Ulrich and Scofield, No. 628.
wisconsinensis Whitfield, Ulrich and Scofield, No. 628.
Thaleops ovata Conrad, 1843, Clarke, No. 133.
Thamnograptus affinis nom. prov., Whiteaves, No. 687.
Tillotherium fodiens Marsh, Osborn, No. 458.
Trapa
americana n. sp., Knowlton, No. 345.
(?) occidentalis n. sp., Knowlton, No. 345.
Tremanotus Hall, Ulrich and Scofield, No. 628.
Tricentes Cope, Matthew, No. 418.
crassicolliidens Cope, Matthew, No. 418.
subtrigonus (Cope), Matthew, No. 418.
Trichospongia hystrix n. sp., Whiteaves, No. 687.
Triforis sp. f, Guppy and Dall, No. 255.
Trisodon Cope, Matthew, No. 418.
gaudrianus (Cope), Matthew, No. 418.
heilprrianus Cope, Matthew, No. 418.
Tripliocosta n. subgen., Cooper, No. 148.
Triptoceras sp. f, Clarke, No. 134.
lambii Whiteaves, 1891, Clarke, No. 134.
lambii Whiteaves, Whiteaves, No. 687.
oweni n. sp., Clarke, No. 134.
planoconvexum Hall, 1861, Clarke, No. 134.
planodorsatum, Whitfield, 1882, Clarke, No. 134.
semiplanatum Whiteaves, Whiteaves, No. 687.
Trochoceras (?) mocharlesii Whiteaves, Whiteaves, No. 687.
Trochonema Salter, Ulrich and Scofield, No. 628.
altum n. sp., Ulrich and Scofield, No. 628.
beachi Whitfield, Ulrich and Scofield, No. 628.
beloitense Whitfield, Ulrich and Scofield, No. 628.
bellulum n. sp., Ulrich and Scofield, No. 628.
eccentricum n. sp., Ulrich and Scofield, No. 628.
fragile n. sp., Ulrich and Scofield, No. 628.

Paleontology—Continued.

Genera and species described—Continued.

Trochonema—Continued.

- madisonense n. sp., Ulrich and Scofield, No. 628.
 niota Hall, Ulrich and Scofield, No. 628.
 retrorsum n. sp., Ulrich and Scofield, No. 628.
 rugosum n. sp., Ulrich and Scofield, No. 628.
 subcrassum n. sp., Ulrich and Scofield, No. 628.
 umbilicatum Hall, Ulrich and Scofield, No. 628.
 v. grans n. sp., Ulrich and Scofield, No. 628.
 (Eunema) arctatum n. sp., Ulrich and Scofield, No. 628.
 nitidum n. sp., Ulrich and Scofield, No. 628.
 obsoletum n. sp., Ulrich and Scofield, No. 628.
 robbinsi n. sp., Ulrich and Scofield, No. 628.
 salteri n. sp., Ulrich and Scofield, No. 628.
 smile n. sp., Ulrich and Scofield, No. 628.

Trochonematidae n. fam., Ulrich and Scofield, No. 628.

Tryblidium Lindström, Ulrich and Scofield, No. 628.

modestum n. sp., Ulrich and Scofield, No. 628.

Tuba antiqua Con., Aldrich, No. 18.

(Mathilda) leana n. sp., Aldrich, No. 18.

Turbonilla

- angulata n. sp., Guppy and Dall, No. 255.
 plastica n. sp., Guppy and Dall, No. 255.
 simplicior n. sp., Guppy and Dall, No. 255.
 tenuilineata n. sp., Guppy and Dall, No. 255.
 turritissima n. sp., Guppy and Dall, No. 255.
 (Stylopsis) ictona n. sp., Guppy and Dall, No. 255.

Turritella

- arata n. sp., Guppy and Dall, No. 255.
 belvideri n. sp., Cragin, No. 152.
 diversilineata n. sp., Merriam, No. 425.

Tylosaurus, Williston, No. 709, 710.

Typhis obesus Gabb, Guppy and Dall, No. 255.

Ultimus precursor n. sp., Guppy and Dall, No. 255.

Vanuxemia Billings, Ulrich, No. 626.

- abrupta n. sp., Ulrich, No. 626.
 crassa n. sp., Ulrich, No. 626.
 decipiens n. sp., Ulrich, No. 626.
 dixonensis Meek and Worthen, Ulrich, No. 626.
 var. insueta n. var., Ulrich, No. 626.
 hayniana Safford, Ulrich, No. 626.
 media n. sp., Ulrich, No. 626.
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[Bulletin 156.]

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93. Some Insects of Special Interest from Florissant, Colorado, and Other Points in the Tertiaries of Colorado and Utah, by Samuel Hubbard Scudder. 1892. 8°. 35 pp. 3 pl. Price 5 cents.
94. The Mechanism of Solid Viscosity, by Carl Barus. 1892. 8°. 138 pp. Price 15 cents.
95. Earthquakes in California in 1890 and 1891, by Edward Singleton Holden. 1892. 8°. 31 pp. Price 5 cents.
96. The Volume Thermodynamics of Liquids, by Carl Barus. 1892. 8°. 100 pp. Price 10 cents.
97. The Mesozoic Echinodermata of the United States, by William Bullock Clark. 1893. 8°. 207 pp. 50 pl. Price 20 cents.
98. Flora of the Outlying Carboniferous Basins of Southwestern Missouri, by David White. 1893. 8°. 139 pp. 5 pl. Price 15 cents.
99. Record of North American Geology for 1891, by Nelson Horatio Darton. 1892. 8°. 73 pp. Price 10 cents.

100. Bibliography and Index of the Publications of the U. S. Geological Survey, 1879-1892, by Philip Creveling Warman. 1893. 8°. 495 pp. Price 25 cents.
101. Insect Fauna of the Rhode Island Coal Field, by Samuel Hubbard Souder. 1893. 8°. 27 pp. 2 pl. Price 5 cents.
102. A Catalogue and Bibliography of North American Mesozoic Invertebrata, by Cornelius Breckinridge Boyle. 1893. 8°. 315 pp. Price 25 cents.
103. High Temperature Work in Igneous Fusion and Ebullition, chiefly in Relation to Pressure, by Carl Barus. 1893. 8°. 57 pp. 9 pl. Price 10 cents.
104. Glaciation of the Yellowstone Valley north of the Park, by Walter Harvey Wood. 1893. 8°. 41 pp. 4 pl. Price 5 cents.
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127. Catalogue and Index of Contributions to North American Geology, 1732-1891, by Nelson Horatio Darton. 1896. 8°. 1045 pp. Price 60 cents.
128. The Bear River Formation and its Characteristic Fauna, by Charles A. White. 1895. 8°. 108 pp. 11 pl. Price 15 cents.
129. Earthquakes in California in 1894, by Charles D. Perrine. 1895. 8°. 25 pp. Price 5 cents.
130. Bibliography and Index of North American Geology, Paleontology, Petrology, and Mineralogy for 1892 and 1893, by Fred Broughton Weeks. 1896. 8°. 210 pp. Price 20 cents.
131. Report of Progress of the Division of Hydrography for the Calendar Years 1893 and 1894, by Frederick Haynes Newell, Topographer in Charge. 1895. 8°. 126 pp. Price 15 cents.
132. The Disseminated Lead Ores of Southeastern Missouri, by Arthur Winslow. 1896. 8°. 31 pp. Price 5 cents.
133. Contributions to the Cretaceous Paleontology of the Pacific Coast: The Fauna of the Knoxville Beds, by T. W. Stanton. 1895. 8°. 132 pp. 20 pl. Price 15 cents.
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135. Bibliography and Index of North American Geology, Paleontology, Petrology, and Mineralogy for the Year 1894, by F. B. Weeks. 1896. 8°. 141 pp. Price 15 cents.
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138. Artesian-Well Prospects in the Atlantic Coastal Plain Region, by N. H. Darton. 1896. 8°. 238 pp. 19 pl. Price 20 cents.

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139. Geology of the Castle Mountain Mining District, Montana, by W. H. Weed and L. V. Pirsson. 1896. 8°. 164 pp. 17 pl. Price 15 cents.
140. Report of Progress of the Division of Hydrography for the Calendar Year 1895, by Frederick Haynes Newell, Hydrographer in Charge. 1896. 8°. 356 pp. Price 25 cents.
141. The Eocene Deposits of the Middle Atlantic Slope in Delaware, Maryland, and Virginia, by William Bullock Clark. 1896. 8°. 167 pp. 40 pl. Price 15 cents.
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146. Bibliography and Index of North American Geology, Paleontology, Petrology, and Mineralogy for the Year 1895, by F. B. Weeks. 1896. 8°. 130 pp. Price 15 cents.
147. Earthquakes in California in 1895, by Charles D. Perrine, Assistant Astronomer in Charge of Earthquake Observations at the Lick Observatory. 1896. 8°. 23 pp. Price 5 cents.
148. Analyses of Rocks, with a Chapter on Analytical Methods, Laboratory of the United States Geological Survey, 1880 to 1896, by F. W. Clarke and W. F. Hillebrand. 1897. 8°. 306 pp. Price 20 cents.
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150. The Educational Series of Rock Specimens Collected and Distributed by the United States Geological Survey, by Joseph Silas Diller. 1898. 8°. 400 pp. 47 pl. Price 25 cents.
151. The Lower Cretaceous Gryphaeas of the Texas Region, by R. T. Hill and T. Wayland Vaughan. 1898. 8°. 139 pp. 35 pl. Price 15 cents.
152. A Catalogue of the Cretaceous and Tertiary Plants of North America, by F. H. Knowlton. 1898. 8°. 247 pp. Price 20 cents.
153. A Bibliographic Index of North American Carboniferous Invertebrata, by Stuart Weller. 1898. 8°. 653 pp. Price 35 cents.
154. A Gazetteer of Kansas, by Henry Gannett. 1898. 8°. 246 pp. 6 pl. Price 20 cents.
155. Earthquakes in California in 1896 and 1897, by Charles D. Perrine, Assistant Astronomer in Charge of Earthquake Observations at the Lick Observatory. 1898. 8°. 47 pp. Price 5 cents.
156. Bibliography and Index of North American Geology, Paleontology, Petrology, and Mineralogy for the Year 1897, by Fred Boughton Weeks. 1898. 8°.

In preparation:

- The Gneisses, Gabbro-Schists, and Associated Rocks of Southeastern Minnesota, by C. W. Hall.
- The Geology of Eastern Berkshire County, Massachusetts, by B. K. Emerson.
- The Moraines of Southeastern Dakota and their Attendant Deposits, by J. E. Todd.

WATER-SUPPLY AND IRRIGATION PAPERS.

By act of Congress approved June 11, 1896, the following provision was made:

"*Provided*, That hereafter the reports of the Geological Survey in relation to the gauging of streams and to the methods of utilizing the water resources may be printed in octavo form, not to exceed one hundred pages in length and five thousand copies in number; one thousand copies of which shall be for the official use of the Geological Survey, one thousand five hundred copies shall be delivered to the Senate, and two thousand five hundred copies shall be delivered to the House of Representatives, for distribution."

Under this law the following papers have been published:

1. Pumping Water for Irrigation, by Herbert M. Wilson. 1896. 8°. 57 pp. 9 pl.
2. Irrigation near Phoenix, Arizona, by Arthur P. Davis. 1897. 8°. 97 pp. 31 pl.
3. Sewage Irrigation, by George W. Rafter. 1897. 8°. 100 pp. 4 pl.
4. A Reconnaissance in Southeastern Washington, by Israel Cook Russell. 1897. 8°. 96 pp. 7 pl.
5. Irrigation Practice on the Great Plains, by Elias Branson Cowgill. 1897. 8°. 39 pp. 12 pl.
6. Underground Waters of Southwestern Kansas, by Erasmus Haworth. 1897. 8°. 65 pp. 12 pl.
7. Seepage Waters of Northern Utah, by Samuel Fortier. 1897. 8°. 50 pp. 3 pl.
8. Windmills for Irrigation, by E. C. Murphy. 1897. 8°. 49 pp. 8 pl.
9. Irrigation near Greeley, Colorado, by David Boyd. 1897. 8°. 90 pp. 21 pl.
10. Irrigation in Mesilla Valley, New Mexico, by F. C. Barker. 1898. 8°. 51 pp. 11 pl.
11. River Heights for 1896, by Arthur P. Davis. 1897. 8°. 100 pp.
12. Water Resources of Southeastern Nebraska, by Nelson H. Darton. 1898. 8°. 56 pp. 21 pl.
13. Irrigation Systems in Texas, by William Ferguson Hutson. 1898. 8°. 67 pp. 10 pl.
14. New Tests of Certain Pumps and Water-Lifts used in Irrigation, by Osmi P. Hood. 1898. 8°. 91 pp. 1 pl.
15. Operations at River Stations, 1897, Part I. 1898. 8°. 100 pp.
16. Operations at River Stations, 1897, Part II. 1898. 8°. 101-200 pp.

In preparation:

17. Irrigation near Bakersfield, California, by C. E. Grunsky.
18. Irrigation near Fresno, California, by C. E. Grunsky.
19. Irrigation near Merced, California, by C. E. Grunsky.
20. Experiments with Windmills, by T. O. Perry.

TOPOGRAPHIC MAP OF THE UNITED STATES.

When, in 1882, the Geological Survey was directed by law to make a geologic map of the United States, there was in existence no suitable topographic map to serve as a base for the geologic map. The preparation of such a topographic map was therefore immediately begun. About one-fifth of the area of the country, excluding Alaska, has now been thus mapped. The map is published in atlas sheets. Under the plan adopted the entire area of the country is divided into small quadrangular districts (designated *quadrangles*), bounded by certain meridians and parallels. The unit of survey is also the unit of publication. The separate sheets are sold at 5 cents each when fewer than 100 copies are purchased, but when they are ordered in lots of 100 or more copies, whether of the same sheet or of different sheets, the price is 2 cents each. The mapped areas are widely scattered, nearly every State being represented. More than 900 sheets have been engraved and printed; they are tabulated by States in the Survey's "List of Publications," a pamphlet which may be had on application.

The map sheets represent a great variety of topographic features, and with the aid of descriptive text they can be used to illustrate topographic forms. This has led to the projection of an educational series of topographic folios, for use wherever geography is taught in high schools, academies, and colleges. Of this series the first folio has been issued, viz:

1. Physiographic types, by Henry Gannett, 1898, folio, consisting of the following sheets and 4 pages of descriptive text: Fargo (N. Dak.-Minn.), a region in youth; Charleston (W. Va.), a region in maturity; Caldwell (Kans.), a region in old age; Palmyra (Va.), a rejuvenated region; Mount Shasta (Cal.), a young volcanic mountain; Eagle (Wis.), moraines; Sun Prairie (Wis.), drumlins; Donaldsonville (La.), river flood plains; Boothbay (Me.), a fiord coast; Atlantic City (N. J.), a barrier-beach coast.

GEOLOGIC ATLAS OF THE UNITED STATES.

The Geologic Atlas of the United States is the final form of publication of the topographic and geologic maps. The atlas is issued in parts, or folios, progressively as the surveys are extended, and is designed ultimately to cover the entire country.

Each folio contains topographic, geologic, economic, and structural maps, together with textual descriptions and explanations, and is designated by the name of a principal town or of a prominent natural feature within the district.

Two forms of issue have been adopted, a "library edition" and a "field edition." In both the sheets are bound between heavy paper covers, but the library copies are permanently bound, while the sheets and covers of the field copies are only temporarily wired together.

Under the law a copy of each folio is sent to certain public libraries and educational institutions. The remainder are sold at 25 cents each, except such as contain an unusual amount of matter, which are priced accordingly. Prepayment is obligatory. The folios ready for distribution are listed below.

No.	Name of sheet.	State.	Limiting meridians.	Limiting parallels.	Area, in square miles.	Price, in cents.
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3	Placerville	California.	120° 30'-121°	38° 30'-39°	932	25
4	Kingston	Tennessee	84° 30'-85°	35° 30'-36°	960	25
5	Sacramento	California.	121°-121° 30'	38° 30'-39°	932	25
6	Chattanooga	Tennessee	85°-85° 30'	35°-35° 30'	975	25
7	Pikes Peak	Colorado..	105°-105° 30'	38° 30'-39°	932	25
8	Sewanee	Tennessee	85° 30'-86°	35°-35° 30'	975	25
9	Anthracite-Crest- ed Butte.	Colorado..	106° 45'-107° 15'	38° 45'-39°	465	50
10	Harpers Ferry	Virginia..	77° 30'-78°	39°-39° 30'	925	25
11	Jackson	Maryland.	77°-77° 30'	38°-38° 30'	938	25
12	Estillville	California.	120° 30'-121°	38°-38° 30'	938	25
13	Fredericksburg	Virginia..	82° 30'-83°	36° 30'-37°	957	25
14	Staunton	Tennessee	77°-77° 30'	38°-38° 30'	938	25
15	Lassen Peak	Virginia..	79°-79° 30'	38°-38° 30'	938	25
16	Knoxville	West Va..	79°-79° 30'	38°-38° 30'	938	25
17	Marysville	California.	121°-122°	40°-41°	3,634	25
18	Smartsville	Tennessee	83° 30'-84°	35° 30'-36°	925	25
19	Stevenson	N. Carolina	121° 30'-122°	39°-39° 30'	925	25
20	Cleveland	California.	121°-121° 30'	39°-39° 30'	925	25
21	Pikeville	Alabama..	85° 30'-86°	34° 30'-35°	980	25
22	McMinnville	Tennessee	84° 30'-85°	35°-35° 30'	975	25
23	Nomini	Tennessee	85°-85° 30'	35° 30'-36°	960	25
24	Three Forks	Tennessee	85° 30'-86°	35° 30'-36°	960	25
		Maryland..	76° 30'-77°	38°-38° 30'	938	25
		Virginia..	111°-112°	45°-46°	3,354	50

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27	Morristown	West Va. }	83°-83° 30'	36°-36° 30'	963	25
28	Piedmont	Tennessee	79°-79° 30'	39°-39° 30'	925	25
		Virginia ..				
		Maryland }				
		West Va. }				
29	Nevada City:					
	Nevada City.					
	Grass Valley.	California.	121° 00' 25"-121° 03' 45"	39° 13' 50"-39° 17' 16"	11.65	50
	Banner Hill.		121° 01' 35"-121° 05' 04"	39° 10' 22"-39° 13' 50"	12.09	
	Yellowstone National Park:		120° 57' 05"-121° 00' 25"	39° 13' 50"-39° 17' 16"	11.65	
30	Gallatin Canyon.					
	Shoshone Lake.	Wyoming.	110°-111°	44°-45°	3,412	75
31	Pyramid Peak	California.	120°-120° 30'	38° 30'-39°	932	25
32	Franklin	Virginia ..	79°-79° 30'	38° 30'-39°	932	25
		West Va. }				
33	Briceville	Tennessee	84°-84° 30'	36°-36° 30'	963	25
34	Buckhannon	West Va. }	80°-80° 30'	38° 30'-39°	932	25
35	Gadsden	Alabama	86°-86° 30'	34°-34° 30'	986	25
36	Pueblo	Colorado	104° 30'-105°	38°-38° 30'	938	50
37	Downieville	California.	120° 30'-121°	39° 30'-40°	919	25
38	Butte Special	Montana..	112° 29' 30"-112° 36' 42"	45° 59' 28"-46° 02' 54"	22.80	50
39	Truckee	California.	120°-120° 30'	39°-39° 30'	925	25
40	Wartburg	Tennessee	84° 30'-85°	36°-36° 30'	963	25
41	Sonora	California.	120°-120° 30'	37° 30'-38°	944	25
42	Nueces	Texas	100°-100° 30'	29° 30'-30°	1,035	25
43	Bidwell Bar	California.	121°-121° 30'	39° 30'-40°	918	25

STATISTICAL PAPERS.

Mineral Resources of the United States, 1882, by Albert Williams, jr. 1883. 8°. xvii, 813 pp. Price 50 cents.

Mineral Resources of the United States, 1883 and 1884, by Albert Williams, jr. 1885. 8°. xiv, 1016 pp. Price 60 cents.

Mineral Resources of the United States, 1885. Division of Mining Statistics and Technology. 1886. 8°. vii, 576 pp. Price 40 cents.

Mineral Resources of the United States, 1886, by David T. Day. 1887. 8°. viii, 813 pp. Price 50 cents.

Mineral Resources of the United States, 1887, by David T. Day. 1888. 8°. vii, 832 pp. Price 50 cents.

Mineral Resources of the United States, 1888, by David T. Day. 1890. 8°. vii, 652 pp. Price 50 cents.

Mineral Resources of the United States, 1889 and 1890, by David T. Day. 1892. 8°. viii, 671 pp. Price 50 cents.

Mineral Resources of the United States, 1891, by David T. Day. 1893. 8°. vii, 630 pp. Price 50 cents.

Mineral Resources of the United States, 1892, by David T. Day. 1893. 8°. vii, 850 pp. Price 50 cents.

Mineral Resources of the United States, 1893, by David T. Day. 1894. 8°. viii, 810 pp. Price 50 cents.

On March 2, 1895, the following provision was included in an act of Congress:

"Provided, That hereafter the report of the mineral resources of the United States shall be issued as a part of the report of the Director of the Geological Survey."

In compliance with this legislation the following reports have been published:

Mineral Resources of the United States, 1894, David T. Day, Chief of Division. 1895. 8°. xv, 648 pp., 23 pl.; xix, 735 pp., 6 pl. Being Parts III and IV of the Sixteenth Annual Report.

Mineral Resources of the United States, 1895, David T. Day, Chief of Division. 1896. 8°. xxiii, 542 pp., 8 pl. and maps; iii, 543-1058 pp., 9-13 pl. Being Part III (in 2 vols.) of the Seventeenth Annual Report.

Mineral Resources of the United States, 1896, David T. Day, Chief of Division. 1897. 8°. xii, 642 pp., 1 pl.; 643-1400 pp. Being Part V (in 2 vols.) of the Eighteenth Annual Report.

The report on the mineral resources for the calendar year 1897 will form a part of the Nineteenth Annual Report of the Survey.

The money received from the sale of the Survey publications is deposited in the Treasury, and the Secretary of the Treasury declines to receive bank checks, drafts, or postage stamps; all remittances, therefore, must be by MONEY ORDER, made payable to the Director of the United States Geological Survey, or in CURRENCY—the exact amount. Correspondence relating to the publications of the Survey should be addressed to—

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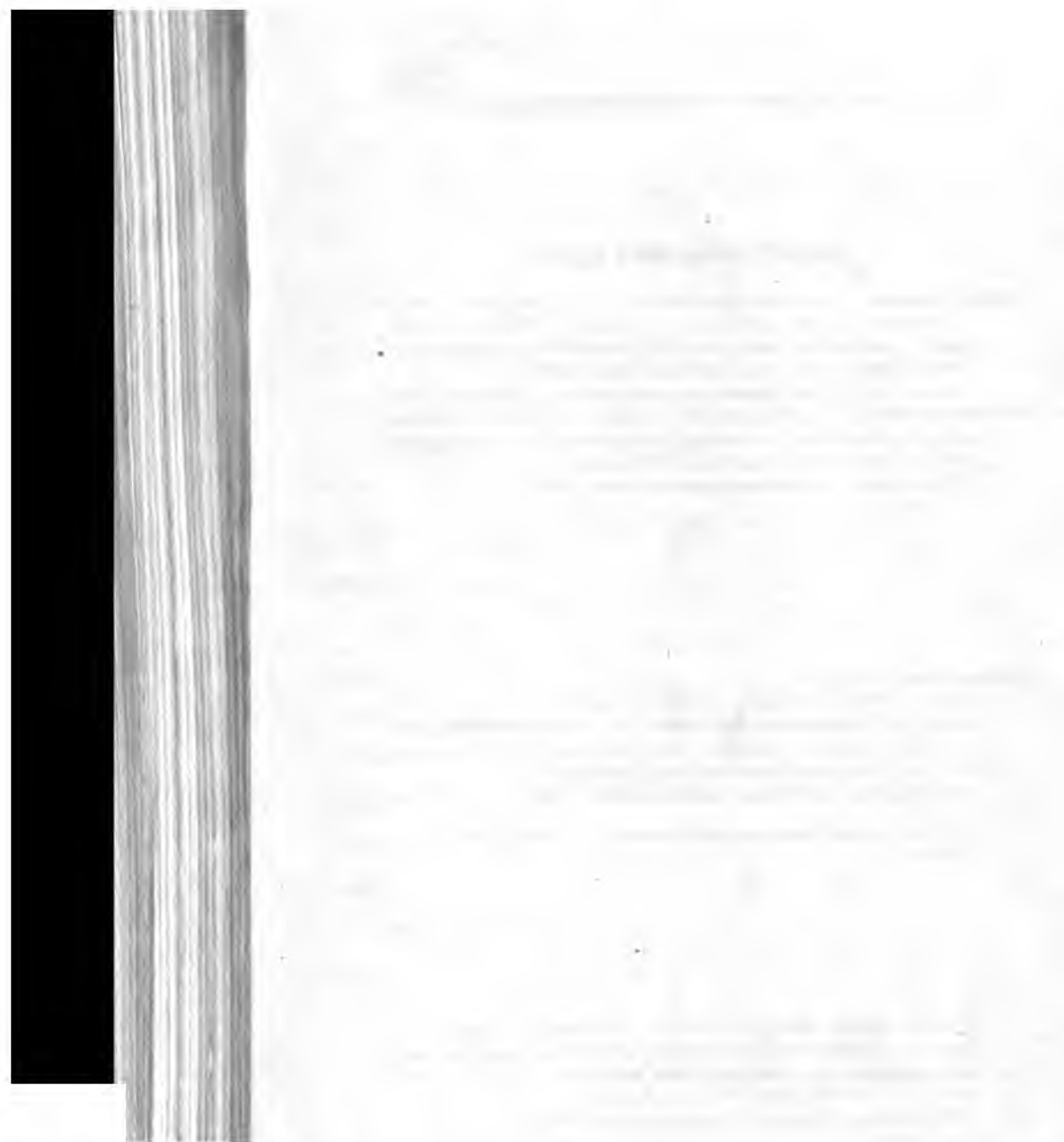
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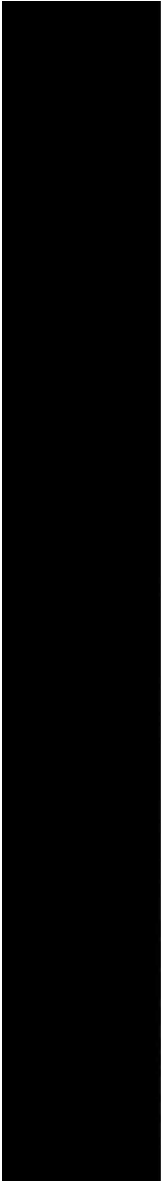
Series.	United States. <i>Department of the interior. (U. S. geological survey.)</i> Department of the interior — Bulletin of the United States geological survey no. 156 [Seal of the department] . Washington government printing office 1898 <i>Second title:</i> United States geological survey Charles D. Walcott, director — Bibliography and index of North American geology, paleontology, petrology, and mineralogy for the year 1897 by Fred Boughton Weeks [Vignette] Washington government printing office 1898 8°. 130 pp.
Author.	Weeks (Fred Boughton). United States geological survey Charles D. Walcott, director — Bibliography and index of North American geology, paleontology, petrology, and mineralogy for the year 1897 by Fred Boughton Weeks [Vignette] Washington government printing office 1898 8°. 130 pp. [UNITED STATES. <i>Department of the interior. (U. S. geological survey.)</i> Bulletin 156.]
Subject.	United States geological survey Charles D. Walcott, director — Bibliography and index of North American geology, paleontology, petrology, and mineralogy for the year 1897 by Fred Boughton Weeks [Vignette] Washington government printing office 1898 8°. 130 pp. [UNITED STATES. <i>Department of the interior. (U. S. geological survey.)</i> Bulletin 156.]











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